

A STUDY OF SELECTED PROCESS EVALUATION VARIABLES  
AND THEIR RELATIONSHIP TO PRODUCT CRITERIA  
IN SECONDARY VOCATIONAL EDUCATION  
PROGRAMS IN OKLAHOMA

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## CHAPTER I

### INTRODUCTION

A recurring problem in the arena of education is the belief and acceptance by educators and the public that all educational processes presently employed have some relationship or impact on what students do after leaving our educational institutions. Proceeding on the belief and acceptance that these program characteristics are "good," the educational processes are then evaluated on the basis of their efficiency or in-house effectiveness. Such is generally the case with regional accrediting agencies that have developed process evaluation instruments which are utilized to judge the effectiveness of the process criteria. The process criteria embrace the in-house concepts as "cause" aspects of education. These agencies jointly with local education agencies spend vast amounts of time, funds and human resources each year in examining and judging processes which educators themselves have pre-determined and accepted as good.

#### Statement of the Problem

In order for decision makers at all levels to make valid decisions, it is necessary and desirable that research be conducted to determine the relationships between the process and product variables. With these relationships established, greater levels of confidence in evaluative results can be accepted on the part of the decision maker and

resources can be conserved by evaluating only those process criteria that impact on the outcomes of educational institutions.

The Oklahoma State Department of Vocational and Technical Education is involved in the evaluation of all secondary vocational programs over a five-year period (1971-76). This evaluation involves an examination of both process and product measures (see Appendix A and B).

One of the major problems facing the State Department of Vocational and Technical Education is that it is not known what variables should be considered in evaluation of vocational programs. The establishment of significant relationships between process and product criteria would enable the department to conserve fiscal and human resources.

#### Purpose of the Study

The purpose of this study is to examine both subjectively and objectively measured process variables and their relationship to the product measure of secondary programs, i.e., "The Product Index" (Ross, 1973).

#### Need for the Study

With the continued scarcity of education dollars, it is of paramount necessity to determine what vocational educational processes have significant impact on the outputs of secondary vocational programs. The decision maker's dilemma is basically twofold at present. He must determine priorities as to certain inputs into the vocational process based on the subjective opinion that these inputs are "good", and secondly, he is forced to evaluate only the outcomes of those processes. The basic problem relates to the fact that little has been accomplished

to determine the relationship of the processes to the products.

### Scope of the Study

The scope of this study was concerned only with those Oklahoma secondary vocational programs that were evaluated in the 1973-74 school year and that had a three-year Product Index (1971-73).

### Assumptions

For the purpose of this study, the following assumptions were made:

1. That the data gathered by the student accounting system each year is valid and reliable.
2. That all data used in this study has or yields low interval or ordinal level measurement.
3. That the team members and teachers will rate items in an unbiased manner such that the resulting ratings will be valid.
4. That the objective data on each program is accurate.
5. That secondary vocational programs evaluated in 1973-74 are representative of all secondary vocational education programs in Oklahoma.

### Definition of Terms

In order to clarify the meaning of certain terms used in this study, the following terms and their definitions are given:

Product Index - A quantitative figure which reflects the number of graduates/completers that are (a) available for employment, (b) employed in the occupation or related occupations, (c) continuing related education, and retention of students that are eligible to re-enroll in the program.

Criteria Average Rating - The averaged rating of team members and the teacher on a five-point scale on all items relating to each criteria (administration, staff, program evaluation, curriculum...) in the Summary Evaluation Questionnaire.

Total Overall Average Rating - The average of the sum total of all items rated on a five-point scale of the team members and teachers for the program.

Regular Vocational Programs - All secondary vocational programs in Oklahoma supported under part "B" of the Vocational Education Amendments of 1968 (P.L. 90-576).

Program Evaluation Questionnaire - A 20 item questionnaire that gathers objective data on each vocational program. The questionnaire is completed in September and returned to the Oklahoma State Department of Vocational and Technical Education by teachers who have been evaluated previously or are being evaluated during the current school year.

Summary Evaluation Questionnaire - A 63 item subjective evaluation questionnaire rated by the evaluation team and teacher on a five-point scale. The questionnaire is mailed in September to programs being evaluated during the current year and returned to the Oklahoma State Department of Vocational and Technical Education by September 15.

L.E.A.'s - Local education agencies (School Districts).

Product Assessment - The outputs of secondary vocational programs. In this study the product refers to a three-year product index of vocational programs.

Process Evaluation - To examine or judge the in-house effectiveness of

the inputs such as administration, staff, curriculum equipment, facilities, etc.

OTIS - Occupational Training Information System, an automated management information system designed to interface manpower demand and supply in Oklahoma.

Student Accounting System - An automated sub-system of OTIS which gathers: (a) student enrollment information of vocational programs, (b) student completion information on vocational programs, and (c) follow-up information on the status of completors of vocational programs.

Evaluation Team - A two- or three-member team per program composed of State Department personnel and/or teacher educators and/or State Advisory Council members and/or local vocational teachers.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Introduction

The purpose of this study was to examine process variables and their relationship to a three-year Product Index (placement record) of secondary vocational programs in Oklahoma.

The purpose of this chapter is to provide an overview of the need to examine the association between vocational processes and product. This chapter is divided into the following sections: (1) Historical overview of evaluation, (2) The federal mandate to vocational education, (3) The need for research in evaluation, (4) Process-product studies, and (5) The process-product approach to evaluation in Oklahoma.

#### Historical Overview of Evaluation

Wenting and Lawson (1975) have indicated that formal systems of evaluation date as early as 2200 B. C. China used an elaborate system of competitive examinations in its civil service system. Public officials were examined every third year to determine fitness for continuing in office. After being administered three examinations, officials were either promoted or dismissed. This process closely resembles today's system of evaluation for granting tenure in public education institutions.

In the United States, before 1850, the appraisal of educational achievement had relied very heavily on oral examinations. During the last half of the nineteenth century, oral exams were replaced by written exams for admission to colleges or universities.

The growth of measurement tests during the first sixty years of the twentieth century can be divided into four phases. The pioneering phase, 1900-1915, saw the emergence of achievement tests and the work of Otis and others on group tests of intelligence. The boom phase from 1915-1930 saw rapid development in production of achievement and intelligence tests. The critical appraisal period from 1930 to 1945 was devoted to taking stock, broadening techniques and delimiting interpretations of psychological and educational tests. The period of 1945-1969 can be characterized as the period of test batteries and testing programs. The period from 1960 to the present can be identified as a second cycle of the critical appraisal phase.

Directly associated with the "boom phase" was work done by Robert Thorndike (1969). Impetus was provided by Thorndike for the early adoption of measuring techniques to evaluate changes in learner behavior.

Other early contributors to evaluation methodologies were the accreditation movement and Ralph Tyler's Eight Year Study. Tyler's (1965) work had its emphasis on the evaluation of student outcomes.

John Flanagan (1964) of the American Institute for Research, conducted a study entitled, "Project Talent", in the 1960's to determine the relationships between student abilities and characteristics and their success or failure in post-program jobs.

Ralph Tyler (1965) initiated the National Assessment Project in

1969, in which he sampled student behavior in an attempt to chart student performance from school to school and from state to state.

### The Federal Mandate to Vocational Education

In discussing funding and evaluation activity from 1930 through 1963, Wenting and Lawson (1975) state:

Until 1963, most. . . studies were the result of federally or foundation funded projects and did not reflect evaluative action on the part of the individual states or educational agencies. In 1963, with the passage of the Vocational Education Act, each state was required to establish a state advisory committee for vocational education which would be responsible for evaluation within each state. . . however. . . the state advisory committees did not assume the responsibility for evaluation as the legislation had intended (p. 7).

It was not until 1968, with the passage of the amendments to the 1963 Vocational Education Act, that emphasis was placed on the requirement for evaluation on the part of individual states and advisory councils within each state. With the passage of the 1963 act, its subsequent amendments in 1968, and the Elementary and Secondary Education Act of 1965 (ESEA), considerable pressure to evaluate was placed on state and local school systems. Contained in Title I of the amendments to the 1963 act (Public Law 90-576, 1968) were the following mandates to national and state advisory councils:

1. The national council shall "review the administration and operation of vocational education programs, including the effectiveness of such programs in meeting the purposes for which they were established."
2. The national council shall "conduct independent evaluations of programs carried out under this title."
3. The national council shall "review the possible duplication of



programs at the post-secondary and adult levels within geographic areas."

4. The state advisory council shall "evaluate vocational education programs, services, and activities assisted under this title."

Again, as in 1963, much of the intent of the legislation was not met. The major problem being that state and local agencies failed to adequately define evaluation. Even though federal legislation required evaluation of process and product for particular programs, guidelines as to the "how" of evaluation were few to nonexistent. Without consensus on the definition of evaluation or evaluative procedures, confusion was rampant. Coupled with this confusion was the fact that few state and local personnel had the necessary background and training for the design and implementation of evaluation systems.

The stage was set, and as a result, a deluge of evaluation models, frameworks, and theories was forthcoming from the academicians.

Poo-yen Koo (1970) indicates that the following are only some of the definitions or terms that beset educators. Terms such as "qualitative" and "quantitative" evaluation offered by Hart (1966), "formative" and "summative" evaluation offered by Scriven (1966), "educational accountability and audit system" by Donahue and Rhodes (1970), "internal" and "external" evaluation by Gagne and Dick (1961), also Schaefer (1966), and "process" and "product" evaluation by Bradfield and Moredock (1970), also Moss (1968).

Ward's survey (1970) provides further evidence that a multitude of evaluation procedures and/or processes proliferate within the educational scene. Out of the 29 states in his survey, 24 had formal evaluation procedures, 16 were conducting varying degrees of research on

evaluation, three were tailoring the System for Statewide Evaluation of Vocational Education developed by the Center for Vocational and Technical Education in Ohio, four were using local self-evaluation, eight used a combination approach, one used a state staff supervisory evaluation, one used a team and nine were using a systems approach. Obviously there was overlapping of methods and procedures and Ward's data (1970) did not lend itself to a strict dichotomy. Nevertheless, his study does substantiate the lack of consensus on the direction and methods used to evaluate vocational education.

In explaining this phenomenon, Steele (1973) states:

The need, both by those providing and those receiving funds, for a better understanding of evaluation and more accurate and efficient evaluation procedures triggered the expansion in ideas about evaluation that has occurred in the past few years (p. 11).

#### The Need for Research in Evaluation

Evans (1974) has indicated that more evaluations of ongoing educational programs should be based on an experimental design with random assignment. Although this approach might be laudable for large scale project-type evaluations, it is doubtful whether this approach is practical in programmatic state and local evaluations.

Stevenson (1973), in his address to members of the American Vocational Association in the New and Related Services Division, states:

Evaluative criteria can be divided into two categories. . .those items which cause quality (process evaluation) and those items which show quality (product evaluation). . .there must be a demonstrated relationship between the items which show quality and certain items which cause quality. For too long we have depended on experience, on observation, and on tradition to determine what we would accept as quality procedures without any real knowledge that these specified procedures are

related to the quality of the product (p. 77).

Concerning the need to determine relationships between the inputs and outcomes of vocational programs, Moss (1968) states:

Given the present state of knowledge, the major purpose of evaluation must be to determine which program characteristics actually produce the desired outcomes. . . (p. 5).

Moss introduces the following as the major components of an evaluative system:

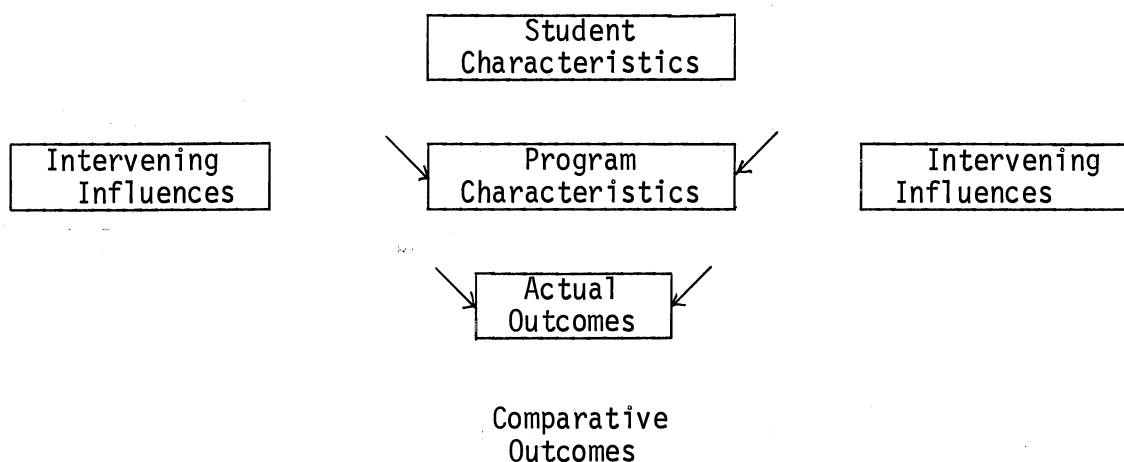


Figure 1. Major Components of the Evaluative System

Poo-yen Koo, Director of Occupational Data in the Department of Education in New Jersey, supports additional emphasis on research in this area. In a special paper, Koo (1970) states:

Not until more research is accomplished to single out various correlations between the dependent and independent variables, or until factor analysis is used for large scale evaluation designs, will the evaluation

of outcomes alone tell anything about the process in the program (p. 3).

Reflecting the general revolt of the taxpayers toward education as a whole, other researchers have taken a similar stand.

Krystal and Henrie (1972) state:

Conservative taxpayers are reluctant to give schools more money unless it can be demonstrated that they are getting measurable results. . . minorities and their champions charge that schools are not educating their children. Julius Hoffman, director of the Washington Institution of Quality Education, has said, 'Education is the only industry in which the consumer, the child, is held responsible for the quality of the product' (p. 2).

In the search for relevancy in American education, be it through process evaluation or product assessment, much effort is being expended to answer critics of education and improve the school.

In examining what approach to take in evaluating instructional programs, Moss (1968) states:

. . . the criteria by which instructional programs are to be evaluated must be the outcome--the products--of instruction. Program characteristics cannot be used as evaluative criteria, for, by so doing, we assume rather than prove, that those characteristics are good (p.6).

This viewpoint is similar to those held by Womer (1970) and supporters of the National Assessment of Educational Process, also a brochure by Michigan State University (1970), "A Systems Approach to Evaluation of Vocational Education".

In defense of process evaluation, Poo-Yen Koo (1970) states:

. . . process evaluation should not be discredited simply because 'we assume, rather than prove, that those program characteristics are good'. . . If one scans those principles presented by Allen (1914), Prosser (1925), Wright (1926), Struck (1945), McCarthy (1950), and Roberts (1957), he will find that some of them are purely the result of logical inference, and some others have indeed been empirically validated... (p. 3).

### Process-Product Studies

The author, in reviewing a multitude of journals, books, research reports, monographs, and a computerized search of ERIC (Educational Resources Information Center), documents, which included Resources in Education, Abstracts of Research Material, and Abstracts of Instructional Material, found only a few studies which had conducted research in the area of process-product relationships. This semi-void in research, pertaining to this particular area, provided additional support for the need to conduct research in this important field. A real operational problem, coupled with the fact that little research has been completed, highlighted the need for meaningful research to be conducted between process and product variables.

In reviewing the literature, this author found that most of the rhetoric concerning evaluation methodology was based on expertise and/or consensus. The author has referenced this in the earlier part of this chapter. Further evidence of this is a study conducted by Harold Starr, entitled, "Vocational Education Program Evaluation Inventory". In this study, Starr (1975) conducted a Delphi-type survey among more than 540 vocational educators in which he sought information regarding those criteria which vocational education programs should be evaluated. Of the ten criteria selected as being most important, six were identifiable as process criteria.

This author does not wish to imply that this type of research is not important; on the contrary, it is much needed, with program evaluation still in its infancy. What the literature does reveal is a challenging, unspoken question: "Does anything we do or provide, in terms

of training, have any relationship to related post-program employment?"

As a challenge to vocational educators, specifically concerned with evaluation, Koo (1970) states:

. . .more studies must be made regarding correlation between specific program characteristics and program outcomes. The more we know about such correlations, the more intelligently we shall be able to figure out how to improve programs as a result of program evaluation (p. 4).

In attempting to provide information in this area, a study mentioned earlier in this chapter was that by Eninger.

This study began in 1963 and was funded by two different agencies. Volume I, "The Process", was funded by the Ford Foundation. Volume II, "The Product", was funded by the Department of Labor. The purpose of the study was to determine relationships between independent variables such as (1) Student resources, and (2) School process to a dependent variable, "relatedness of the first full-time job to the occupation studied."

Multiple regression analysis was used to analyze the data. The sample population was all schools in the United States offering three or more T & I courses. A stratified random sample of 100 schools was drawn from a national population of 667 schools. The results of the study showed significant correlation coefficients in the following areas: (1) Placement related variables, (2) Teacher related variables, (3) Curriculum related variables, (4) Student resource variables, (5) Guidance related variables, and (6) Instruction related variables.

Concerning the findings of these two studies, Eninger (1968) states: "It is reasonable to infer a causal relationship between the top three variables. . .1, 2 and 3. . .and placement performance" (p. 12-8).

This study provided some insights into process-product relationships with reference to trade and industrial education. The scope of the study, however, was too limited in reference to all service divisions in order to attack the problem concerning this study. There also were some differences in both dependent and independent variables.

Another study (Blaschke, 1975) which was conducted by the Educational Turnkey Systems, Inc., for the Michigan Department of Education, examined relationships of several independent variables concerning compensatory education reading programs and a dependent variable--reading achievement. A condensed summary of the positive findings are as follows:

1. The 25 successful compensatory education reading programs spent an average of \$742 per pupil and the 23 unsuccessful ones averaged \$587. Thirty percent of the difference in achievement was attributed to the amount of money spent per pupil.

2. The principal's satisfaction with comp-ed curriculum decision methods had a direction positive relationship with reading achievement.

3. The greater degree of decision-making delegated to teachers and the greater amount of time they spend on managing and individualizing instruction had a direct positive relationship to reading achievement.

4. A greater amount of coordination among building staff, especially between the compensatory education teacher and the regular teachers had a direct positive relationship to reading achievement.

5. The amount of time spent by the compensatory education staff on planning and preservice training had a direct positive relationship

to reading achievement.

Variables which seemed to have no impact on achievement were as follows:

1. Class size
2. Teacher's salary
3. Teaching experience
4. Age of teacher
5. Number of children receiving free lunches

A factor which seemed to be related to low achievement was the use of paraprofessionals in the classroom.

Both of these studies refute the findings of earlier studies and the thesis that schools do not make a difference in terms of student performance or post-program occupational experience.

A study in which little or no relationship was found between multiple school independent and dependent variables was conducted by Johnston and Bachman (1972). The study, entitled "Youth in Transition Project", consisted of a national inquiry over a four-year period from the tenth grade, the higher education, military service, and the world of work. One of the objectives was to isolate school characteristics which affect young people's (boy's) test scores, values, attitudes, affective states, behavior patterns, education and occupational aspirations. Nothing that distinguished one school from another could be credited with changes which occurred in the young men. It simply did not matter whether the school was rich or poor, hired above or below average teachers, had many resources or few or how it was organized and run.

Johnston and Bachman (1972) state:



There are differences between schools in the outcomes of their students to be sure--but when we ask what produces these differences, we find almost invariably that they can be attributed to individual differences in background and basic abilities. . . (p. 7).

Both the Eninger and the Compensatory Education study have provided the necessary research background that would support the underlying rationale of the research questions of this study.

### The Process-Product Approach to Evaluation in Oklahoma

In August of 1970, the Research Coordinating Unit of Oklahoma State University, which also serves as the research arm of the Oklahoma State Department of Vocational and Technical Education, worked closely with Mr. Roy Stewart, Executive Secretary of the State Advisory Council for Vocational and Technical Education to implement steps for the evaluation of vocational programs in Oklahoma.

With direction and assistance from Dr. Francis Tuttle, State Director, and Dr. William Stevenson, Assistant State Director and Head, Division of Research, Planning and Evaluation, a five year plan was developed for the evaluation of all secondary programs in Oklahoma. Twenty percent of all secondary programs were selected by divisional areas to be evaluated each year. The evaluation effort began during school year 1971-72 and is at the present concluding the fourth phase with eighty percent of the population evaluated.

A process-product type of evaluation has been employed to evaluate both the efficiency and effectiveness of the programs.

The process evaluation of programs is accomplished through a team evaluation and teacher-self evaluation approach. The criteria of the

process, (i.e., administration and supervision, staff, program evaluation, curriculum, instructional materials, instructional procedures, library materials, community relations, advisory committee, public relations, student testing and selection, facilities and equipment, graduate placement assistance, and student organizations) were judged subjectively by the team and teacher rating the 63 items in the Summary Evaluation Questionnaire. An objective approach to assessing the quality of the process is accomplished by each vocational teacher completing a Program Evaluation Questionnaire during the year his program is scheduled to be evaluated and each year thereafter. The Program Evaluation Questionnaire yields objective data on 20 items that relate to instructional and consumable supplies, equipment, facilities, the teacher relations with employers, student desire to enter the occupation, student mobility, supervisory visits and youth organizations.

The product evaluation-assessment utilizes the Student Accounting System, a sub-system of the Occupational Training Information System, in gathering enrollment, completion and follow-up data on graduates of vocational programs. The analysis of these data by programs is utilized to determine effectiveness in terms of program placement. To do this, it was necessary to convene a task force to determine by what criteria vocational programs should be held accountable. Prior to the implementation of the 1971-72 evaluation of secondary programs, Dr. William Stevenson called a meeting of all state supervisors of the instructional divisions. The outcome of this meeting and subsequent meetings was the identification of four criteria on which programs would be held accountable. These criteria are: (1) Percent of vocational graduates available for employment, (2) Percent of graduates

employed in the occupation or related occupation, (3) Percent of graduates continuing related education, and (4) Retention of students who are eligible to re-enroll in the class. The summative results of these criteria eventually became known as the Product Index. The Evaluation Unit has calculated a Mean Product Index of 1974 graduates by divisional area on a 100 percent sample of all vocational programs. Recommendations are presently being prepared to the effect that all secondary programs that fall two standard deviations below their divisional mean be identified and referred to the appropriate state and district supervisors for special assistance for improving placement. The core of the problem confronting the Evaluation Unit is basically what the supervisor should recommend in the way of processes improvement that will assist the vocational instructor at the local level to improve his placement of graduates, i.e., what process criteria related significantly to the Product Index of vocational programs. This then was the rationale and the basis for the implementation of this study.

## CHAPTER III

### DESIGN AND METHODOLOGY

The major purpose of this study was to examine process variables and their relationship to the three-year Product Index of secondary vocational education programs in Oklahoma.

The purposes of this chapter are to describe: (1) The design, (2) The research questions, (3) The populations, (4) The sampling procedure, (5) The instrumentation, (6) The collection of data, and (7) The analyses of data.

#### The Design

The design of the study was ex post facto in nature. The independent variables, i.e., the process variables, had already occurred in 1973-74 and the research began with the observation of the dependent variable, i.e., the three-year Product Index in the fall of 1974.

#### Research Questions

The present study focuses on the relationship of subjective and objective independent variables to the dependent variable by division and/or occupational area. Four major research questions have been formulated to provide data relative to the association of the variables under study.

Research Question 1. Is there a significant relationship between

a three-year Product Index (1971-73) of secondary vocational programs and the Total Overall Average Ratings of those programs?

Research Question 2. Is there a significant relationship between a three-year Product Index (1971-73) of secondary vocational programs stratified by division and/or occupational area and the Criteria Average Ratings of those programs in the following areas:

- A. Administrative and supervisory support
- B. Staff
- C. Program evaluation
- D. Curriculum
- E. Instructional materials
- F. Instructional procedures
- G. Library materials
- H. Community relations
- I. Advisory committee
- J. Public relations
- K. Student testing and selection
- L. Facilities and equipment
- M. Graduate placement assistance
- N. Student placement assistance
- O. Student organization
- P. Total Overall Average Rating

Research Question 3. Is there a significant relationship between a three-year Product Index (1971-73) of secondary vocational programs stratified by division and/or occupational area and the objective data of those programs in the following areas:

- A. Expenditures for supplies
- B. Funds received for services
- C. Expenditures for equipment
- D. New equipment needed
- E. Total value of present equipment
- F. Facility age
- G. Facility condition
- H. Facility size
- I. Total years teaching experience
- J. Years in present position
- K. Year updated occupational/skill experience
- L. Year updated professional improvement
- M. Degree level of teacher
- N. Number of employers known
- O. Employer request for graduates
- P. Student desire to enter occupation
- Q. Graduate mobility
- R. Number of class visits to industry or business
- S. Number of supervisory visits
- T. School wealth (revenue per capita based on average daily attendance)

For further clarification on objective variables, refer to Appendix B.

Research Question 4. Is there a significant relationship between a one-year Product Index (1973) and a three-year Product Index (1971-73) stratified by division and/or occupational area for those programs evaluated in 1973-74?

## The Population

The population for this study was all regular funded secondary vocational programs in Oklahoma. The sample selected for the study was limited to those Part B and G programs evaluated during school year 1973-74 that had a three-year Product Index. This sample constituted 111 programs in 65 schools in 15 counties. Programs within the sample that were excluded from the study were: (1) Part B programs that did not have Product Indices for all three years (1971-73), and (2) Those occupational areas where there were less than five programs.

The 1973-74 sample of programs was selected because: (1) Their evaluation was most recent, (2) They yielded the largest number of programs with a three-year Product Index, and (3) The 1974-75 sample had not completed the evaluation cycle.

## Sampling Procedure

A study was made by the Evaluation Unit of the Division of Research, Planning and Evaluation, State Department of Vocational and Technical Education in the fall of 1970 to determine the number of secondary vocational programs in each county. Also, the number of programs in each school in the Tulsa and Oklahoma City school districts were determined. Counties and metropolitan schools were randomly selected until a twenty percent sample of programs was drawn for each of the years in the five-year evaluation effort being undertaken. The names of counties with the number of programs in its schools were placed in one container. Tulsa and Oklahoma City schools with the number of programs were placed in another container. Counties and

metropolitan schools were randomly drawn until a twenty percent mix of programs was selected for each of the five years. Small adjustments were then arbitrarily made to balance the programs for each of the service division areas.

With this adjustment completed, the twenty percent mix was evenly distributed among the seven service divisions of the State Department of Vocational and Technical Education for each of the five years.

Implementation of new program starts or construction of new area schools have not drastically altered the sample size for each year.

Data relevant to the 16 subjective independent variables came from the overall average ratings of the team and teachers evaluation of each variable in the Summary Evaluation Questionnaire.

Data relevant to the 19 objective independent variables is the objective data completed by each teacher on the Program Evaluation Questionnaire. The independent variable, school wealth, was gathered from State Department of Education records. The independent variable PI-1 (1973 Product Index) was gathered through the Student Accounting System. The dependent variable data which is used to calculate the Product Index was gathered through the Student Accounting System.

### Instrumentation

#### Summary Evaluation Questionnaire and Program Evaluation Questionnaire

All State Directors of vocational and technical education throughout the United States were requested to submit forms of evaluation material used in their respective states during the fall of 1970.



Thirty-nine of the Directors responded. All of the questionnaires provided were of the subjective-process nature. Criteria relating to major topic areas were reviewed and synthesized. Seventy-five response items were adopted for the rough draft of the Summary Evaluation Questionnaire. All of the State Supervisors of the service divisions were requested to review the criteria and response items for the purpose of approval, deletion or addition of new criteria or items. Seventy items were approved by the supervisors for inclusion in the questionnaire for the 1971-72 evaluation. The questionnaire was then submitted to Dr. Francis Tuttle, State Director of Vocational and Technical Education, and his assistants, Mr. Arch Alexander, Mr. Byrle Killian and Dr. William W. Stevenson, for their approval.

The Program Evaluation Questionnaire, a companion objective questionnaire, was developed during the same period of time. Twenty-seven criteria were arbitrarily selected, based on expertise within the Division of Research, Planning and Evaluation. The same process of approving the questionnaire was followed as with the Summary Evaluation Questionnaire. Both companion questionnaires were then used in the 1971-72 evaluation effort on twenty percent of the vocational programs. Weaknesses were revealed through the 1971-72 evaluation effort and by critiques of the staff and administration of the Central Area Vocational-Technical School at Drumright during the spring of 1972. Revision of both instruments with local-state input is ongoing with field testing continuing through school year 1974-75.

During the 1973-74 evaluation cycle, 20 items were included in the Program Evaluation Questionnaire and 63 in the Summary Evaluation Questionnaire. It is these instruments that provide the data on a

majority of the subjective and objective variables. Teachers complete both questionnaires in September. Completion by team members is an ongoing activity from September to April each year. All material is submitted to the Evaluation Unit for processing.

### Student Accounting System

The Student Accounting System, now a sub-system of the Occupational Training Information System, was initially developed in the summer of 1968 by the Research Coordinating Unit at Oklahoma State University. The system has undergone revisions to its present single entry design.

The Student Accounting System, which gathers the supply information, includes information on enrollment, completion and follow-up of graduates or completors of high school vocational programs.

A study to validate the information collected with the Student Accounting System was conducted during school year 1969-70 and again in 1973-74. A sample of graduates was randomly selected in each study and a survey questionnaire was mailed out to each graduate in each of the samples. Although the responses were somewhat different than those indicated by the teachers of the graduates, the responses on the status completed by the graduate did closely approximate that indicated by the teacher in both studies.

It is this system that provides the data with which the Product Index of each vocational program is computed.

### Product Index

A task force composed of all Oklahoma State supervisors and assistant state directors of vocational education met in the fall of 1970 to

discuss and agree upon what outcome measures would be considered as valid for secondary vocational education programs in the state.

After considerable study, four criteria were agreed upon and selected as outcome criteria. Each criterion was to be given equal weight. Those criteria selected were as follows:

1. Percent of graduates/completers available for employment.
2. Percent of graduates/completers employed in the occupation or related occupation.
3. Percent of graduates/completers continuing related education.
4. Retention rate of students in the program.

The task force requested that Dr. William Frazier, Director of the Research Coordinating Unit, develop the equation for computing the results of the criteria. This work was completed quickly and the computation results he termed a "Product Index".

The criteria were then presented to Dr. Francis Tuttle, State Director of Vocational and Technical Education, and he in turn presented the criteria to the State Board for Vocational and Technical Education for its approval. The Board approved the criteria which are now an official part of the evaluative measures of secondary vocational programs.

### Analyses of the Data

In analyzing the data, this researcher utilized the Spearman rank-order correlation and the Stepwise regression maximum  $R^2$  procedures.

Though the Spearman procedure was adequate to test the research questions contained in the study, the author felt that the inclusion of the Stepwise regression maximum  $R^2$  procedure would add additional data

to this field of research. Both techniques are part of the Statistical Analysis System used in the Statistical Department at Oklahoma State University.

Output of the Spearman procedure, according to Barr and Goodnight (1972), includes in part: (1) the computation of a simple correlation table of the dependent and independent variables, (2) their approximate significance level, and (3) the number of observations making up the correlation coefficients.

Outputs of the Stepwise regression maximum  $R^2$  improvement procedure according to Barr and Goodnight (1972), include in part: (1) the number of independent variables in the "best" model, (2) the names of independent variables in the "best" model, and (3) the corresponding  $R^2$  statistic of the "best" model.

The output also includes the beta values and other necessary data in order to calculate the multiple regression equation(s).

The Spearman procedure permitted the organization of correlation tables to show relationships as they existed between each of the independent variables and the dependent variable by service divisions and/or occupational area.

Secondly, the Spearman procedure permitted an analysis to test the research questions contained in the study. The alpha level was preset at the .05 level for significance.

The third part of the analysis utilized the Stepwise regression maximum  $R^2$  procedure to compute the partial and multiple coefficient of correlations between the optimum composite of predictive variables (models) and the Product Index.

Data yielded by this procedure was also utilized for the computation of multiple regression equations for prediction of Product Indices by service division and/or occupational areas.

## CHAPTER IV

### RESULTS

The purpose of this study was to examine process variables and their relationship to the three-year Product Index (PI-3) of secondary vocational programs in Oklahoma. The results from the analysis of data are presented in this chapter. The Spearman rho correlation procedure was used to test the research questions contained in the study. The Stepwise Maximum  $R^2$  Regression analysis was also utilized. This procedure allowed the computation of partial and multiple coefficients of correlations between the optimum composite (models) of predictive variables and the three-year Product Index.

The reader should be aware that the multiple R value for the first variable in each regression table (IV-IX) is, in fact, a Pearson product moment correlation coefficient which may vary slightly from the comparable Spearman rho correlation coefficient in Tables I-III.

Results of the analysis are presented in three sections as follows: (1) A test of the research questions contained in the study, (2) The computations of partial and multiple coefficient of correlations between the optimum models of predictive variables and the three-year Product Index, and (3) The formulation of a multiple regression equation.

### Tests of the Research Questions

Four major research questions, with multiple sub-questions on research question two and three, were tested for significant relationship to a three-year Product Index by service division and/or occupational area. The alpha level was preset at the .05 level; however, greater levels were reported where they were found.

#### Research Question One

Is there a significant relationship between a three-year Product Index (1971-73) of secondary vocational programs and the Total Average Ratings of those programs?

Reference to Table I indicates that there is a significant relationship between a three-year Product Index and the Total Average Ratings of secondary vocational programs. Although the relationship was significant, the coefficient of correlation was relatively small (.133).

TABLE I  
CORRELATION BETWEEN THE THREE-YEAR PRODUCT INDEX  
AND THE TOTAL OVERALL AVERAGE RATINGS FOR  
SECONDARY VOCATIONAL PROGRAMS

| Variable                      | All Divisions/Occupational Areas<br>PI-3<br>N=111 |
|-------------------------------|---|
| Total Overall Average Ratings | .133*   |

\*Significant at the .0001 level

## Research Question Two

Is there a significant relationship between a three-year Product Index (1971-73) of secondary vocational programs stratified by division and/or occupational area and the Criteria Average Ratings of those programs?

Reference to Table II indicates that there was a significant relationship between the three-year Product Index and eight (8) of the Criteria Average Ratings in the division of Agriculture; one (1) in the division of Distributive Education; six (6) in the division of Business and Office; one (1) that was negative in Carpentry; none (0) in Auto Mechanics; and one (1) in Industrial Cooperative Training.

Results of the Analysis also indicate that the independent variable "Curriculum" was significantly related to the three-year Product Index more often than any of the other independent variables. Significance of this variable appeared in all three of the service divisions but in none of the occupational areas where the number of programs were smaller. In the three cooperative areas, Distributive Education, Business and Office Education, and Industrial Cooperative Training, Business and Office Education had the largest number (6) of significant correlations between the subjective independent variable and the criterion. Only one subjective variable was observed as being significant in each of the other two cooperative areas.

Results of the analysis further indicate that a majority of the Criteria Average Ratings were negatively related in the Trade and Industrial Education day-trade programs of Carpentry and Auto Mechanics. One hundred two (102) correlation coefficients were computed in all six of the service divisions and/or occupational areas on Criteria Average Ratings. From this total, 37 were negatively related of which 31 were in the two day-trade programs mentioned above.



TABLE II  
CORRELATIONS BETWEEN THE THREE-YEAR PRODUCT INDEX  
AND THE CRITERIA AVERAGE RATING STRATIFIED BY  
SERVICE DIVISION AND/OR OCCUPATIONAL AREA

| Variables<br>(Criteria)           | Distributive Business |              |              |             |                   |                          |
|-----------------------------------|-----------------------|--------------|--------------|-------------|-------------------|--------------------------|
|                                   | Agriculture           | Education    | Office       | Carpentry   | Auto<br>Mechanics | Industrial<br>Coop.Trng. |
|                                   | PI-3<br>N=53          | PI-3<br>N=13 | PI-3<br>N=11 | PI-3<br>N=9 | PI-3<br>N=6       | PI-3<br>N=9              |
| 2. Administration & Supervision   | .366*                 | .391         | -.081        | -.700**     | -.314             | .083                     |
| 3. Staff                          | .214                  | .261         | .348         | -.159       | -.200             | .200                     |
| 4. Program Evaluation             | .338**                | .413         | .430         | -.376       | .085              | .217                     |
| 5. Curriculum                     | .336**                | .573**       | .633**       | -.616       | -.405             | .233                     |
| 6. Instructional Materials        | .210                  | .002         | .096         | -.349       | -.200             | .400                     |
| 7. Instructional Procedures       | .249                  | .387         | .309         | -.184       | .202              | .435                     |
| 8. Library Materials              | .408*                 | .000         | .385         | -.200       | -.314             | .529                     |
| 9. Community Relations            | .336**                | .371         | .680**       | -.266       | -.314             | .433                     |
| 10. Advisory Committee            | -.035                 | -.016        | .251         | -.316       | -.600             | .133                     |
| 11. Public Relations              | .074                  | .371         | .675**       | -.317       | -.231             | .361                     |
| 12. Student Testing & Selection   | .266                  | .459         | .620**       | -.426       | -.428             | .588                     |
| 13. Facilities & Equipment        | .284**                | .008         | .481         | -.500       | -.714             | .750**                   |
| 14. Graduate Placement Assistance | .245                  | -.202        | .795*        | -.317       | -.550             | .234                     |
| 15. Student Placement Assistance  | .297**                | -.071        | .563         | -.333       | -.714             | .317                     |
| 16. Student Organization          | .192                  | .423         | .281         | -.254       | -.057             | -.266                    |
| 17. Total Overall Average Rating  | .357*                 | .374         | .633**       | -.333       | -.428             | .283                     |

\*Significant at the .01 level

\*\*Significant at the .05 level

### Research Question Three

Is there a significant relationship between a three-year Product Index (1971-73) of secondary vocational programs stratified by service division and/or occupational area and the objective data of those programs?

Reference to Table III indicates that there is a significant relationship between a three-year Product Index and seven (7) of the objective independent variables in the service division of Agriculture; one (1) in the division of Distributive Education; three (3) in the division of Business and Office Education; two (2) in the occupational area of Carpentry; one (1) in Auto Mechanics; and one (1) in Industrial Cooperative Training.

In the analysis of the objective data, four independent variables appeared more often (twice) among the three service divisions and three occupational areas than any of the other independent variables. Those four variables were: (1) Number of years taught in present position, (2) Number of class visits to related businesses, (3) School wealth, and (4) The 1973 Product Index.

The analysis of objective data also indicates that the division of Agriculture had the largest number of independent variables (7) that were significantly related to the dependent variable. The same observation was made in the analysis of subjective data. In fact, it was observed that the same general trend that occurred in the analysis of subjective data, i.e., larger numbers of positive significant correlations in Agriculture and Business and Office Education, and larger numbers of negative correlations in Trade and Industrial Education programs, occurred in the analysis of objective data. In comparing the cooperative areas per se, Business and Office Education had a greater

TABLE III  
CORRELATION BETWEEN THE THREE-YEAR PRODUCT INDEX  
AND OBJECTIVE DATA STRATIFIED BY SERVICE  
DIVISION AND/OR OCCUPATIONAL AREA

| Variables<br>(Objective Data)       | Agriculture<br>PI-3<br>N=53 | Distributive<br>Education<br>PI-3<br>N=13 | Business<br>Office<br>PI-3<br>N=11 | Carpentry<br>PI-3<br>N=9 | Auto<br>Mechanics<br>PI-3<br>N=6 | Industrial<br>Coop. Trng.<br>PI-3<br>N=9 |
|-------------------------------------|-----------------------------|---|------------------------------------|--------------------------|----------------------------------|--|
| 2. Expenditure for Supplies         | .053                        | .063                                      | .253                               | -.487                    | -.086                            | -.086                                    |
| 3. Funds Received for Services      | .197                        | -.213                                     | -.092                              | -.008                    | .028                             | -.653                                    |
| 4. Expenditures for Equipment       | .288**                      | -.084                                     | -.179                              | .170                     | -.550                            | -.113                                    |
| 5. New Equipment Needed             | .037                        | -.369                                     | -.178                              | .175                     | .371                             | .195                                     |
| 6. Total Value of Present Equipment | .433*                       | -.257                                     | .473                               | .502                     | .000                             | -.050                                    |
| 7. Facility Age                     | -.108                       | .230                                      | .054                               | .410                     | -.376                            | .260                                     |
| 8. Facility Condition               | .387*                       | .433                                      | .437                               | -.138                    | .207                             | .079                                     |
| 9. Facility Size                    | .173                        | .280                                      | .548                               | -.401                    | .144                             | -.189                                    |
| 10. Total Years Teaching Experience | .420*                       | .395                                      | .100                               | -.025                    | -.314                            | .016                                     |
| 11. Years in Present Position       | .385*                       | .554**                                    | .063                               | -.153                    | -.485                            | .008                                     |
| 12. Year Updated Skill Experience   | .171                        | -.402                                     | -.451                              | .000                     | -.130                            | .547                                     |
| 13. Year Update Prof. Improvement   | .049                        | .000                                      | .000                               | .273                     | .292                             | .458                                     |
| 14. Degree Level of Teacher         | .261                        | .401                                      | .119                               | .782**                   | -.358                            | .484                                     |
| 15. Number of Employers Known       | .156                        | .355                                      | .695**                             | .175                     | -.318                            | -.201                                    |

TABLE III (CONTINUED)

| Variables<br>(Objective Data)       | Agriculture<br>PI-3<br>N=53 | Distributive<br>Education<br>PI-3<br>N=13 | Business<br>Office<br>PI-3<br>N=11 | Carpentry<br>PI-3<br>N=9 | Auto<br>Mechanics<br>PI-3<br>N=6 | Industrial<br>Coop. Trng.<br>PI-3<br>N=9 |
|-------------------------------------|-----------------------------|---|------------------------------------|--------------------------|----------------------------------|--|
| 16. Employers Request for Graduates | .154                        | .267                                      | .482                               | .447                     | -.173                            | -.253                                    |
| 17. Student Desire to Enter Occup.  | .246                        | .029                                      | .498                               | -.218                    | -.550                            | .218                                     |
| 18. Graduate Mobility               | .028                        | -.183                                     | -.447                              | .000                     | .142                             | -.261                                    |
| 19. No. of Class Visits to Industry | .283**                      | .530                                      | .685**                             | .408                     | .176                             | -.059                                    |
| 20. No. of Supervisory Visits       | .191                        | .507                                      | .317                               | -.715**                  | -.698                            | .179                                     |
| 21. School Wealth                   | -.064                       | -.011                                     | -.218                              | -.383                    | -.898**                          | .678**                                   |
| 22. 1973 Product Index              | .402*                       | .159                                      | .772*                              | .083                     | .028                             | .616                                     |

\*Significant at the .01 level

\*\*Significant at the .05 level

number (3) of significant independent variables in relation to the objective data than both Distributive Education and Industrial Cooperative Training combined.

#### Research Question Four

Is there a significant relationship between a one-year Product Index (1973) and a three-year Product Index (1971-73) stratified by division and/or occupational area for those programs evaluated in 1973-74?

Reference to Table III indicates that there was a significant relationship between a one-year Product Index and a three-year Product Index stratified by division and/or occupational area for those programs evaluated in 1973-74 in the following service divisions: (1) Vocational Agriculture, and (2) Business and Office Education.

#### Relationship Between a Composite of Variables and a Three-Year Product Index

In the second analysis, a Stepwise Maximum  $R^2$  Regression analysis was used to compute the "best model" of predictive variables in each of the service divisions and/or occupational areas. The Stepwise procedure was also used to compute a multiple regression equation in each of the above mentioned areas. The equations will be reported in the third part of the results.

The  $R^2$  values in Tables IV through IX reveal the amount of variation from the mean three-year Product Index that was explained by the subjective and objective independent variables. The variables in each table are listed in their order of contribution and account for the

cumulative percentage of explained variations in each of the service divisions and/or occupational areas. The remaining independent variables did not meet the statistical requirements of the Stepwise procedure for inclusion in the models.

Table IV, concerning Vocational Agriculture, indicates that the best model for Vocational Agriculture is a nine variable model which accounted for 65 percent of the explained variation. Those variables are: (1) The 1973 Product Index, (2) Facility condition, (3) Library materials Overall Average Rating (O.A.R.), (4) Public relations O.A.R., (5) Supervisory visits, (6) Equipment needed (\$), (7) School wealth, (8) Field trips to related business, and (9) Instructional materials O.A.R.

TABLE IV  
RESULTS OF MAXIMUM  $R^2$  REGRESSION ANALYSIS  
FOR VOCATIONAL AGRICULTURE

| Number | Variables                       | R    | $R^2$ |
|--------|---------------------------------|------|-------|
| 1      | 1973 Product Index              | .413 | .170  |
| 2      | Facility Condition              | .586 | .343  |
| 3      | Library Materials O.A.R.        | .658 | .420  |
| 4      | Public Relations O.A.R.         | .717 | .515  |
| 5      | Supervisory Visits              | .740 | .547  |
| 6      | Equipment Needed (\$)           | .762 | .581  |
| 7      | School Wealth                   | .780 | .609  |
| 8      | Field Trips to Related Business | .799 | .639  |
| 9      | Instructional Materials O.A.R.  | .809 | .655  |

N=53

Table V, concerning Distributive Education, presents an 11 variable model as a "best model" for Distributive Education. This composite of independent variables accounts for 100 percent of the variance from the mean three-year Product Index. Variables included in the model were: (1) Student organization O.A.R., (2) Degree level of teacher-coordinator, (3) Student placement assistance O.A.R., (4) Public relations O.A.R., (5) Student testing and selection O.A.R., (6) Curriculum O.A.R., (7) Facility condition, (8) Professional improvement, (9) Field trips to related business, (10) Advisory committee O.A.R., and (11) Evaluation O.A.R.

TABLE V  
RESULTS OF MAXIMUM  $R^2$  REGRESSION ANALYSIS  
FOR DISTRIBUTIVE EDUCATION

| Number | Variables                            | R     | $R^2$ |
|--------|--------------------------------------|-------|-------|
| 1      | Student Organization O.A.R.          | .624  | .389  |
| 2      | Degree Level of Teacher              | .820  | .673  |
| 3      | Student Placement Assistance O.A.R.  | .898  | .807  |
| 4      | Public Relations O.A.R.              | .956  | .915  |
| 5      | Student Testing and Selection O.A.R. | .976  | .953  |
| 6      | Curriculum O.A.R.                    | .993  | .986  |
| 7      | Facility Condition                   | .999  | .998  |
| 8      | Professional Improvement             | .999  | .999  |
| 9      | Field Trips to Related Business      | .999  | .999  |
| 10     | Advisory Committee O.A.R.            | .999  | .999  |
| 11     | Evaluation O.A.R.                    | 1.000 | 1.000 |

N=13

Table VI, concerning Business and Office Education, presents a nine variable model as a "best model" for predicting a three-year Product Index in Business and Office Education. The nine variables accounted for 100 percent of the variation from the mean three-year Product Index of programs for this particular service division. The independent variables included in the composite were: (1) The 1973 Product Index, (2) Number of years taught in present position, (3) Graduate mobility, (4) Instructional materials O.A.R., (5) Administration and supervision O.A.R., (6) Total years teaching experience, (7) Advisory committee O.A.R., (8) Instructional procedures O.A.R., and (9) Staff O.A.R.

TABLE VI  
RESULTS OF MAXIMUM  $R^2$  REGRESSION ANALYSIS  
FOR BUSINESS AND OFFICE EDUCATION

| Number | Variables                             | R     | $R^2$ |
|--------|---------------------------------------|-------|-------|
| 1      | 1973 Product Index                    | .833  | .695  |
| 2      | Years in Present Position             | .907  | .822  |
| 3      | Graduate Mobility                     | .933  | .871  |
| 4      | Instructional Materials O.A.R.        | .980  | .961  |
| 5      | Administration and Supervision O.A.R. | .992  | .984  |
| 6      | Total Years Teaching Experience       | .999  | .999  |
| 7      | Advisory Committee O.A.R.             | .999  | .999  |
| 8      | Instructional Procedures O.A.R.       | .999  | .999  |
| 9      | Staff O.A.R.                          | 1.000 | 1.000 |

N=11



Table VII, concerning Vocational Carpentry, indicates an eight variable model as a "best model" for predicting a three-year Product Index in Vocational Carpentry. This composite of independent variables accounted for 100 percent of the variation from the mean three-year Product Index. Independent variables included in the model as best predictors were: (1) Degree level of teacher, (2) Student desire to enter occupation, (3) Curriculum O.A.R., (4) Expenditure for equipment, (5) Student organization O.A.R., (6) Facility size, (7) Year of professional improvement, and (8) Advisory committee O.A.R.

TABLE VII  
RESULTS OF MAXIMUM  $R^2$  REGRESSION ANALYSIS  
FOR VOCATIONAL CARPENTRY

| Number | Variables                          | R     | $R^2$ |
|--------|------------------------------------|-------|-------|
| 1      | Degree Level of Teacher            | .721  | .521  |
| 2      | Student Desire to Enter Occupation | .964  | .929  |
| 3      | Curriculum O.A.R.                  | .987  | .975  |
| 4      | Expenditure for Equipment          | .996  | .993  |
| 5      | Student Organization O.A.R.        | .999  | .999  |
| 6      | Facility Size                      | .999  | .999  |
| 7      | Year of Professional Improvement   | .999  | .999  |
| 8      | Advisory Committee O.A.R.          | 1.000 | 1.000 |

N=9

Table VIII, concerning Auto Mechanics, presents a five variable model as a "best model" for predicting a three-year Product Index in Auto Mechanics. The five variable composite accounted for 100 percent

of the variation from the criterion. The independent variables, included in the model, were: (1) School wealth, (2) Student testing and selection O.A.R., (3) Field trips to related business, (4) Employer requests for graduates, and (5) Facility condition.

TABLE VIII  
RESULTS OF MAXIMUM  $R^2$  REGRESSION ANALYSIS  
FOR AUTO MECHANICS

| Number | Variables                            | R     | $R^2$ |
|--------|--------------------------------------|-------|-------|
| 1      | School Wealth                        | .858  | .736  |
| 2      | Student Testing and Selection O.A.R. | .982  | .964  |
| 3      | Field Trips to Related Business      | .999  | .999  |
| 4      | Employer Request for Graduates       | .999  | .999  |
| 5      | Facility Condition                   | 1.000 | 1.000 |

N=6

Table IX, concerning Industrial Cooperative Training, reveals an eight variable model as a "best model" for predicting a three-year Product Index in Industrial Cooperative Training programs. The eight variable composite accounted for 100 percent of the variation from the mean three-year Product Index in this occupational area. Independent variables included in the model as the best predictors were: (1) Facilities and equipment O.A.R., (2) Facility age, (3) Degree level of Coordinator, (4) Funds received for services, (5) Years taught in

present position, (6) Instructional Materials O.A.R., (7) Student organization O.A.R., and (8) Instructional procedures O.A.R.

TABLE IX  
RESULTS OF MAXIMUM  $R^2$  REGRESSION ANALYSIS  
FOR INDUSTRIAL COOPERATIVE TRAINING

| Number | Variables                        | R     | $R^2$ |
|--------|----------------------------------|-------|-------|
| 1      | Facilities and Equipment O.A.R.  | .812  | .659  |
| 2      | Facility Age                     | .951  | .906  |
| 3      | Degree Level of Coordinator      | .971  | .943  |
| 4      | Funds Received for Services      | .985  | .971  |
| 5      | Years Taught in Present Position | .999  | .999  |
| 6      | Instructional Materials O.A.R.   | .999  | .999  |
| 7      | Student Organization O.A.R.      | .999  | .999  |
| 8      | Instructional Procedures O.A.R.  | 1.000 | 1.000 |

N=9

### The Multiple Regression Equations

The use of the Spearman rho allowed the testing of the research question to determine if significant relationships did exist between the independent and dependent variables. This was the major purpose of the study; however, by using the Stepwise procedure, additional information was obtained as to what composite of independent variables comprised the "best" predictor of the criterion. Output of the Stepwise procedure included a composite of "best" predictors, their  $R^2$

values, beta weights and other necessary data for computing the regression equations. The purpose of including multiple regression equations in the study as a final result was to provide supplementary information for predicting the dependent variable.

A brief explanation of the values in each of the equations is presented using the regression equation for Agriculture as an example: Values such as +.036, +8.46,.....-.035 are the beta weights by which the independent variables are multiplied. The products of these variables and the constant -14.96 (last value in each equation) are summed algebraically, the result being Y', the predicted three-year Product Index. The standard error of estimate,  $\pm 8.59$ , indicates the degree of accuracy with which it is possible to predict the dependent variable. If the distribution of scores in the sample population is normal, 68 percent of the predicted dependent variables will lie within  $\pm 8.59$  units of their actual value. For a definition of each of the  $X_1, X_2$ ...variables, the reader should refer to the variable numbers in Tables IV through IX respectively. The following are the multiple regression equations for each of the service divisions and/or occupational areas:

#### Vocational Agriculture

$$Y' = +.036X_1 + 8.46X_2 + .011X_3 - .087X_4 + 1.85X_5 + .004X_6 \\ + .002X_7 + 8.33X_8 - .035X_9 - 14.96$$

Standard error of the estimate =  $\pm 8.59$

#### Distributive Education

$$Y' = +.021X_1 + 15.44X_2 - .044X_3 - .157X_4 + .070X_5 + .120X_6 \\ - 3.01X_7 + 4.76X_8 + .225X_9 + .001X_{10} + .001X_{11} - 97.4$$

Standard error of the estimate =  $\pm .010$

Business & Office Education

$$Y' = +.100X_1 - .145X_2 + .388X_3 + .436X_4 - .123X_5 + .251X_6 \\ - .007X_7 - .007X_8 - .002X_9 - 158.7$$

Standard error of the estimate =  $\pm .024$

Auto Mechanics

$$Y' = -.098X_1 - .066X_2 - 1.30X_3 + .128X_4 + .076X_5 + 118.48$$

Standard error of the estimate = 0

Carpentry

$$Y' = +7.423X_1 - .351X_2 + .052X_3 - .0008X_4 + .004X_5 + .0001X_6 \\ -.288X_7 - .001X_8 + 27.169$$

Standard error of the estimate = 0

Industrial Cooperative Training

$$Y' = +.191X_1 + .224X_2 - 8.08X_3 - .016X_4 + .061X_5 + .004X_6 \\ +.0002X_7 - .001X_8 + 10.97$$

Standard error of the estimate = 0.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

The purpose of this study was to determine if significant relationships exist between process variables and a dependent product variable. Stated more in layman's terms, the research questions asked: Is there a significant relationship between what the process evaluation is measuring in local secondary vocational programs and the placement rate of those programs over a three-year period. If high placement from secondary vocational programs is a desirable outcome and significant relationships can be established between process and product measures, considerable effort, both in terms of fiscal and human resources, can be conserved.

In an attempt to answer the questions, data were collected and analyzed for significant relationships. The two instruments used to collect the process data were the Summary Evaluation Questionnaire and the Program Evaluation Questionnaire. The data pertaining to school wealth were gathered through records furnished by the Oklahoma State Department of Education. The data used to compute the three-year Product Index (output measure) were gathered through the Student Accounting System of the State Department of Vocational and Technical Education.

The statistical method used to analyze the data and test the research questions contained in the study was the Spearman rho correlation coefficient. This statistical method was selected due to the level of data being tested and the number of observations in each of the samples.

A Stepwise Regression Maximum  $R^2$  procedure was used to compute the best composite or "best model" of predictor variables. This procedure also allowed the computation of a regression equation for each of the service divisions and/or occupational areas. Both statistical techniques are a part of the Statistical Analysis System used at Oklahoma State University.

The design of the study was ex post facto in nature. This was a major limitation of the study. By observing the independent and dependent variables in retrospect, the researcher was unable to manipulate the independent variables and observe their affect on the dependent variable.

### Findings of the Study

The following is a condensed summary of the findings:

A. There was a significant relationship between a three-year Product Index (1971-73) of Vocational Agriculture programs and the subjective and objective independent variables as follows: (1) Administration and supervision, (2) Program evaluation, (3) Curriculum, (4) Library materials, (5) Community relations, (6) Facilities and equipment, (7) Student placement assistance, (8) Total Overall Average Rating of the program, (9) Expenditure for equipment, (10) Total value of equipment, (11) Facility condition, (12) Total years teaching

experience, (13) Number of class visits to related industry, and (14) The 1973 Product Index.

B. There was a significant relationship between a three-year Product Index (1971-73) of secondary Distributive Education programs and the subjective and objective independent variables in the following areas: (1) Curriculum, and (2) Number of years taught in present position.

C. There was a significant relationship between a three-year Product Index (1971-73) of secondary Business and Office Education programs and the subjective and objective independent variables in the following areas: (1) Curriculum, (2) Community relations, (3) Public relations, (4) Student testing and selection, (5) Graduate placement assistance, (6) Total Overall Average Rating of the program, (7) Employer request for graduates, (8) Number of class visits to related business, and (9) The 1973 Product Index.

D. There was a significant relationship between a three-year Product Index (1971-73) of Vocational Carpentry programs and the subjective and objective independent variables in the following areas: (1) Administration and supervision, (2) Degree level of the teacher, and (3) Number of supervisory visits.

E. There was a significant relationship between a three-year Product Index (1971-73) of Vocational Auto Mechanics programs and the objective independent variable, "School wealth".

F. There was a significant relationship between a three-year Product Index for Industrial Cooperative Training and the objective independent variable, "School wealth".

G. There was a significant relationship between a three-year



Product Index and the 1973 Product Index in the service divisions of Vocational Agriculture and Business and Office Education.

H. It was found that a composite of nine variables was the "best model" of predictors of a three-year Product Index for Vocational Agriculture. The variable, Total Years Teaching Experience, accounted for more of the variation (.191) in the mean three-year Product Index than any of the other independent variables. The cumulative percent of variance accounted for by the nine variables was .655. Table IV lists the nine variables.

I. It was found that a composite of 11 variables was the "best model" of predictive variables for a mean three-year Product Index in Distributive Education. The variable, Student Organization O.A.R., was considered the best predictor and accounted for .389 percent of the cumulative variance in the criterion. The cumulative percent of variance accounted for by all 11 variables was 100 percent. Table V lists the 11 variables.

J. It was found that a composite of nine variables was the "best model" of predictors of a mean three-year Product Index for Business and Office Education. The 1973 Product Index was considered the best predictor and accounted for a higher percent (.695) of the cumulative variance in the criterion than any of the other variables. The nine variables accounted for all (100 percent) of the variance in the dependent variable. Table VI lists all nine variables.

K. It was found that a composite of eight variables was the "best model" of predictors of a three-year Product Index in Vocational Carpentry. The variable, Degree Level of the Teacher, accounted for .521 percent of the variation in the criterion and was considered the

best predictor. One hundred (100) percent of the cumulative variance was accounted for by all eight variables. Table VII lists the eight variables in order of contribution.

L. It was found that a composite of five variables was the "best model" for prediction of the dependent variable in Auto Mechanics. The variable attributing to the highest percent of variance was "School wealth". The cumulative R for this variable was .736. All five variables accounted for 100 percent of variation in the mean three-year Product Index in this occupational area. Table VIII lists all five variables.

M. It was found that a composite of eight variables was the "best model" of predictors for Industrial Cooperative Training programs. The variable, Facilities and Equipment O.A.R., accounted for the highest percent of cumulative variance in the dependent variable. The cumulative multiple R for this variable was .659. The eight variables included in the model accounted for 100 percent of the variance in the three-year Product Index for this particular occupational area. Table IX lists the eight variables in order of contribution.

### Discussion of the Results

The major problem concerning this study was that it is not known what variables should be considered in the evaluation of local vocational programs to conserve fiscal and human resources. In order to justify the revision of the evaluation instruments, it would be necessary that strong correlation coefficients be established that were significant.

There seems to be little agreement among statisticians on how large a coefficient must be in order to ascertain that the relationship is strong or conversely how small in order to reject it as having a trivial relationship. The major criterion normally employed is the importance of the subject under study. The evaluation of local programs is considered as a high priority of the State Department of Vocational and Technical Education and therefore, the subject is considered very important, requiring substantial relationships before any revision of evaluation instruments can be considered.

Although the findings of the study indicated that a number (21) of variables correlate significantly with the criterion, several factors prohibit the drawing of firm conclusions at this point.

First is the level of correlation coefficients in Vocational Agriculture. The highest coefficient established was .433, which accounts for only .1875 percent of the variance in the dependent variable.

Second is the large number (61 of a possible 111) of correlations that were negative in the Trade and Industrial Education programs. Only 20 out of 111 possible correlations were negative in the three service divisions. These negative correlations raise several questions as to why Trade and Industrial Education programs, specifically the day-trade programs, are so different than those of the service divisions. Nevertheless, the large number of negative correlations, coupled with the small number of programs observed, negates the drawing of conclusions in the Trade and Industrial Education areas.

A third factor observed was the inconsistent pattern of variables that were significantly related among the service divisions and occupational areas. Examples of this inconsistency are shown by Program

Evaluation being significantly related in Agriculture, but in none of the other areas; also, Public Relations in Business and Office Education but not in others. This pattern is repeated several times.

The fourth factor which is related to the inconsistent pattern mentioned above is the lack of variables that had a significant correlation in all of the six areas observed. Only one variable "Curriculum" was significantly related in more than two divisions. For these reasons, this writer opts to adopt the conservative viewpoint in regard to the inferential ability of the variables contained in this study.

### Conclusions

Low correlation coefficients, large numbers of negative correlations that were insignificant, inconsistent patterns of relationships, and the small number of independent variables that were significantly related in all of the service divisions and occupational areas prohibit the drawing of firm conclusions in this research.

The study has raised questions in regard to the phenomenon of negative correlations observed in Trade and Industrial Education. Although this study has not provided firm conclusions regarding the relationship between "process" and "product", it has provided some meaningful benchmarks for the advancement of research in this area.

### Recommendations

The following recommendations are offered:

1. That additional research be conducted to identify other intervening variables which may influence a three-year Product Index.

2. That the State Department of Vocational and Technical Education not delete, add to or revise the evaluation instruments until after the 1975-74 evaluation of local vocational programs.

3. That the study be replicated as early as possible with a larger number of programs in each of the service divisions and occupational areas. The number of occupational areas should also be expanded if possible.

4. That research be conducted to ascertain why Trade and Industrial Education programs are negatively related on a high percentage of subjective and objective processes.

#### Implications

Even though the levels of correlations obtained in the study prohibit the drawing of firm conclusions, several implications can be drawn. On close examination of those process variables found significant, many can easily be identified as teacher activities. Secondly, it would appear that the financial ability of the school to adequately support a vocational program might warrant inclusion in any further study. A third consideration should include variables on local and state administrative support in future studies.

While there is little doubt that secondary vocational programs play a large role in developing attitudes and skill proficiencies in our young people, which prepares them for the world of work, it is this writer's view that other intervening variables also affect that entrance. These intervening variables, acting independently or in conjunction with in-school processes, determine whether or not graduates enter the

occupations for which trained or continue on to higher related education. The identification of these variables, though, await greater depths of research at this point in time. It is well known by those actively involved in research that many paths must be explored before results can be obtained that will stand under replications. It is this writer's belief that this study has provided some meaningful direction that will aid further inquiry into this area of education.

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## APPENDIX A

### SUMMARY EVALUATION QUESTIONNAIRE

# VOCATIONAL-TECHNICAL EDUCATION SUMMARY EVALUATION QUESTIONNAIRE

Name of School \_\_\_\_\_ For State Department Use Only  
 Name of Teacher \_\_\_\_\_ School Code (1-9) \_\_\_\_\_  
 Name of Program \_\_\_\_\_ Program Code (10-15) \_\_\_\_\_  
 Name of Evaluator \_\_\_\_\_ School Class Code (16-17) \_\_\_\_\_  
 Date \_\_\_\_\_ Evaluator Teacher Code (18-20) \_\_\_\_\_  
 Teacher Dependency Code (21-22) \_\_\_\_\_

## INSTRUCTIONS

This instrument is to be completed by the vocational teacher as a part of the evaluation of his program. Read each question carefully and check the appropriate rating.  
THIS QUESTIONNAIRE MUST BE RETURNED BEFORE SEPTEMBER 15, 1973.

## Rating Scale

- 0 = Not applicable
- 1 = Poor, major improvement is needed
- 2 = Below average, improvement needed
- 3 = Average
- 4 = Excellent, well done
- 5 = Superior, outstanding

## ADMINISTRATION AND SUPERVISION

1. Administrative personnel encourage and support in-service training for teachers . . . . .
2. Administrative personnel will allow in-school release time for teachers to visit vocational programs in other schools for program improvement . . . . .
3. Administrative personnel encourage teachers to replace worn or obsolete equipment . . . . .
4. State supervisory and consultant personnel give assistance to local administrators and teachers in program projection, planning, and evaluation . .
5. State supervisory and consultant personnel's assistance was satisfactory during the last school year . . . . .

| 1 | 2 | 3 | 4 | 5 | 0 |
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## STAFF

6. The vocational teacher has the personal qualifications to be an effective teacher (the ability to lead, organize, maintain class control, supervise, communicate, etc.) . . . . .
7. The vocational teacher(s) has the necessary background of related occupational work experience . . . . .
8. The vocational teacher has recently or is presently participating in school activities such as class sponsor, student council, etc. . . . .
9. The vocational teacher participates in community activities, such as civic organizations, chamber of commerce, etc. . . . .
10. The vocational teacher takes active measures to further his professional growth and development.
11. The vocational teacher's methods of teaching are adaptable to individual needs, interests, and rates of learning . . . . .

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## EVALUATION

12. The vocational teacher(s) prepares and carries out a plan of continuous evaluation for program improvement and development (in-house evaluation) . . . . .
13. There is a planned program which is followed for the periodic revision of courses of study in light of changing community, socioeconomic, mechanics, and technological changes . . . . .

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## CURRICULUM

14. Education in your vocational program provides students with a range of occupational goals . .
15. The curriculum for your vocational program is concerned with the overall development of each pupil . . . . .
16. There is close coordination and cooperation between the vocational program and the related academic and guidance staff of the school system.

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17. The State Course of study for your particular program is followed . . . . .

18. There is a "common core" of learnings which is stressed for all vocational students and related materials are given to individual students in their areas of interest in your program . . . . .

19. The core of learnings in the vocational program develops understanding and skills necessary for all students for entry-level employment . . . . .

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#### INSTRUCTIONAL MATERIALS AND SUPPLIES

20. Related study materials are available for student use in all areas of training . . . . .

21. The vocational teacher has access to and uses supplementary materials of instruction. . . . .

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#### INSTRUCTIONAL ACTIVITIES AND PROCEDURES

22. The vocational teacher selects effective materials and resources . . . . .

23. The vocational teacher is acquainted with the instructional materials before presenting them to the class . . . . .

24. The vocational teacher uses the instructional materials effectively . . . . .

25. Adequate and appropriate instructional supplies are provided for the vocational program . . . . .

26. The Vocational Department considers evaluation to be an integral part of instruction . . . . .

27. All students are occupied at a definite assignment.

28. Only the minimum number of students is assigned to each task assignment . . . . .

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#### LIBRARY MATERIALS

29. Adequate library facilities are available for the vocational teacher's and students' needs . . . . .

30. Library and instructional materials are filed in such a manner that they are readily accessible to the students or instructor . . . . .

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## COMMUNITY RELATIONS

31. The vocational teacher becomes familiar with the business community through surveys (questionnaires, telephone contacts, or personal interviews) . . . . .
32. The vocational teacher enriches the curriculum with related resources (guest speakers, etc.) . . .
33. Vocational classes visit businesses and industries related to their occupation . . . . .

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## ADVISORY COMMITTEE

34. A representative formal advisory committee assists in improving and expanding the vocational program . . . . .
35. The advisory committee meets as a group in scheduled meetings . . . . .

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## PUBLIC RELATIONS

36. Informative materials enlighten educators, parents, students, and the general public concerning the vocational program . . . . .
37. Informational materials are made available to the public in a variety of ways (radio, TV, etc.) . .

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## STUDENT SELECTION AND TESTING

38. Students are tested on aptitude, interest, and ability prior to entering the vocational program.
39. Guidance is a part of the orientation of pupils entering the vocational program . . . . .
40. Guidance is a part of the learning activities of pupils in the vocational classes . . . . .

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## FACILITIES AND EQUIPMENT

41. Machines and equipment are arranged in such a manner as to emphasize safety, function, and class control . . . . .
42. The size and quality of the classroom and/or shop are adequate to have an effective program in light of its philosophy and objectives . . . . .

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43. The extent and quality of the equipment are adequate to have an effective program in keeping with the philosophy and objectives . . . . .
44. Materials and supplies are stored in a systematic way . . . . .
45. An ample amount of storage space is available for supplies, equipment, and projects of the program.
46. Sufficient funds are made available when the purchase of new equipment is needed. . . . .
47. Sufficient funds are made available for immediate repairs to malfunctioning equipment . . . . .
48. To what extent is obsolete equipment replaced in the program . . . . .
49. To what extent is the equipment modern and representative of that being used in industries representative of your field . . . . .
50. All equipment is operative and in good working order . . . . .
51. The classroom and/or shop is orderly and attractive and provides an example of good housekeeping.

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#### GRADUATE PLACEMENT

52. There is an organized plan for the placement of graduates seeking employment . . . . .
53. The teacher assists graduates in finding job opportunities . . . . .

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#### STUDENT PLACEMENT

54. There is an organized plan for the placement of students seeking employment prior to program completion . . . . .
55. The teacher assists student in finding job opportunities (prior to program completion) . . . . .
56. Information is maintained on the occupational status of former students . . . . .

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#### STUDENT ORGANIZATION

57. The Vocational teacher(s) sponsors a youth organization in which students plan the organization and activities . . . . .

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APPENDIX B

PROGRAM EVALUATION QUESTIONNAIRE

# PROGRAM EVALUATION QUESTIONNAIRE

Name of School \_\_\_\_\_ For State Dept. Use Only  
 Name of County \_\_\_\_\_ School Code (1-9) \_\_\_\_\_  
 Name of Teacher \_\_\_\_\_ Program Code (10-15) \_\_\_\_\_  
 Name of Program \_\_\_\_\_ Teacher Dept. Code (16-17) \_\_\_\_\_  
 Date \_\_\_\_\_ Similar Sch. Code (18-19) \_\_\_\_\_

## INSTRUCTIONS

This instrument is to be completed by the vocational teacher as a part of the evaluation of his program. Read each question carefully and circle the appropriate answers. THIS QUESTIONNAIRE MUST BE RETURNED BEFORE SEPTEMBER 15, 1973.

## SUPPLIES SECTION

1. What was the total amount of funds spent on instructional supplies and consumable supplies for your program or department during the last fiscal year.

|                         |                    |
|-------------------------|--------------------|
| ANSWER:01 \$100 or less | 21 \$2001 - \$2100 |
| 02 \$101 - \$200        | 22 \$2101 - \$2200 |
| 03 \$201 - \$300        | 23 \$2201 - \$2300 |
| 04 \$301 - \$400        | 24 \$2301 - \$2400 |
| 05 \$401 - \$500        | 25 \$2401 - \$2500 |
| 06 \$501 - \$600        | 26 \$2501 - \$3000 |
| 07 \$601 - \$700        | 27 \$3001 - \$3500 |
| 08 \$701 - \$800        | 28 \$3501 - \$4000 |
| 09 \$801 - \$900        | 29 \$4001 - \$4500 |
| 10 \$901 - \$1000       | 30 \$4501 - \$5000 |
| 11 \$1001 - \$1100      | 31 \$5001 - \$5500 |
| 12 \$1101 - \$1200      | 32 \$5501 - \$6000 |
| 13 \$1201 - \$1300      | 33 \$6001 - \$6500 |
| 14 \$1301 - \$1400      | 34 \$6501 - \$7000 |
| 15 \$1401 - \$1500      | 35 \$7001 - \$7500 |
| 16 \$1501 - \$1600      | 36 \$7501 - \$8000 |
| 17 \$1701 - \$1700      | 37 \$8001 - \$8500 |
| 18 \$1701 - \$1800      | 38 \$8501 - \$9000 |
| 19 \$1801 - \$1900      | 39 \$9001 - \$9500 |
| 20 \$1901 - \$2000      | 40 \$9501 - up     |
|                         | 41 Not applicable  |

2. What was the total amount of funds received for services rendered during the last fiscal year for your program or department? (NOTE: Sale of projects, shop fees, services, etc.)

|                   |                      |
|-------------------|----------------------|
| ANSWER:01 None    | 12 \$1001 - \$1500   |
| 02 0 - \$50       | 13 \$1501 - \$2000   |
| 03 \$51 - \$100   | 14 \$2001 - \$3000   |
| 04 \$101 - \$200  | 15 \$3001 - \$4000   |
| 05 \$201 - \$300  | 16 \$4001 - \$5000   |
| 06 \$301 - \$400  | 17 \$5001 - \$6000   |
| 07 \$401 - \$500  | 18 \$6001 - \$7000   |
| 08 \$501 - \$600  | 19 \$7001 - \$8000   |
| 09 \$601 - \$700  | 20 \$8001 - \$9000   |
| 10 \$701 - \$800  | 21 \$9001 - \$10,000 |
| 11 \$801 - \$1000 | 22 \$10,001 - above  |
|                   | 23 Not applicable    |

EQUIPMENT SECTION

3. What has been the total amount of funds expended for the purchase of new equipment (small equipment, large equipment, audiovisual equipment, etc.) in your vocational or technical program or department in the last fiscal year?

|         |    |                 |    |                 |
|---------|----|-----------------|----|-----------------|
| ANSWER: | 01 | Less than \$100 | 16 | \$2801 - \$3000 |
|         | 02 | \$101 - \$200   | 17 | \$3001 - \$3200 |
|         | 03 | \$201 - \$400   | 18 | \$3201 - \$3400 |
|         | 04 | \$401 - \$600   | 19 | \$3401 - \$3600 |
|         | 05 | \$601 - \$800   | 20 | \$3601 - \$3800 |
|         | 06 | \$801 - \$1000  | 21 | \$3801 - \$4000 |
|         | 07 | \$1001 - \$1200 | 22 | \$4001 - \$4200 |
|         | 08 | \$1201 - \$1400 | 23 | \$4201 - \$4400 |
|         | 09 | \$1401 - \$1600 | 24 | \$4401 - \$4600 |
|         | 10 | \$1601 - \$1800 | 25 | \$4601 - \$4800 |
|         | 11 | \$1801 - \$2000 | 26 | \$4801 - \$5000 |
|         | 12 | \$2001 - \$2200 | 27 | \$5001 - \$5500 |
|         | 13 | \$2201 - \$2400 | 28 | \$5501 - \$6000 |
|         | 14 | \$2401 - \$2600 | 29 | \$6001 - up     |
|         | 15 | \$2601 - \$2800 | 30 | Not applicable  |

4. Indicate the cost of new equipment needed in your vocational or technical program or department (Note: Include the cost for replacement of obsolete equipment if it is needed.)

|         |    |                 |    |                 |
|---------|----|-----------------|----|-----------------|
| ANSWER: | 01 | \$100 or less   | 21 | \$2001 - \$2100 |
|         | 02 | \$101 - \$200   | 22 | \$2101 - \$2200 |
|         | 03 | \$201 - \$300   | 23 | \$2201 - \$2300 |
|         | 04 | \$301 - \$400   | 24 | \$2301 - \$2400 |
|         | 05 | \$401 - \$500   | 25 | \$2401 - \$2500 |
|         | 06 | \$501 - \$600   | 26 | \$2501 - \$3000 |
|         | 07 | \$601 - \$700   | 27 | \$3001 - \$3500 |
|         | 08 | \$701 - \$800   | 28 | \$3501 - \$4000 |
|         | 09 | \$801 - \$900   | 29 | \$4001 - \$4500 |
|         | 10 | \$901 - \$1000  | 30 | \$4501 - \$5000 |
|         | 11 | \$1001 - \$1100 | 31 | \$5001 - \$5500 |
|         | 12 | \$1101 - \$1200 | 32 | \$5501 - \$6000 |
|         | 13 | \$1201 - \$1300 | 33 | \$6001 - \$6500 |
|         | 14 | \$1301 - \$1400 | 34 | \$6501 - \$7000 |
|         | 15 | \$1401 - \$1500 | 35 | \$7001 - \$7500 |
|         | 16 | \$1501 - \$1600 | 36 | \$7501 - \$8000 |
|         | 17 | \$1601 - \$1700 | 37 | \$8001 - \$8500 |
|         | 18 | \$1701 - \$1800 | 38 | \$8501 - \$9000 |
|         | 19 | \$1801 - \$1900 | 39 | \$9001 - \$9500 |
|         | 20 | \$1901 - \$2000 | 40 | \$9501 - up     |
|         |    |                 | 41 | Not applicable  |

5. Indicate the total present value of all equipment in your shop or lab for your program or department. (Note: Machines, benches, chairs, desks, textbooks, audiovisual equipment, etc.)

|         |    |                 |    |                     |
|---------|----|-----------------|----|---------------------|
| ANSWER: | 01 | \$100 or less   | 24 | \$7501 - \$8000     |
|         | 02 | \$101 - \$300   | 25 | \$8001 - \$8500     |
|         | 03 | \$301 - \$500   | 26 | \$8501 - \$9000     |
|         | 04 | \$501 - \$700   | 27 | \$9001 - \$9500     |
|         | 05 | \$701 - \$900   | 28 | \$9501 - \$10,000   |
|         | 06 | \$901 - \$1100  | 29 | \$10,001 - \$10,500 |
|         | 07 | \$1101 - \$1300 | 30 | \$10,501 - \$11,000 |
|         | 08 | \$1301 - \$1500 | 31 | \$11,001 - \$11,500 |
|         | 09 | \$1501 - \$1700 | 32 | \$11,501 - \$12,000 |
|         | 10 | \$1701 - \$1900 | 33 | \$12,001 - \$13,000 |
|         | 11 | \$1901 - \$2100 | 34 | \$13,001 - \$15,000 |
|         | 12 | \$2101 - \$2400 | 35 | \$15,001 - \$18,000 |
|         | 13 | \$2401 - \$2700 | 36 | \$18,001 - \$22,000 |
|         | 14 | \$2701 - \$3000 | 37 | \$22,001 - \$28,000 |
|         | 15 | \$3001 - \$3500 | 38 | \$28,001 - \$36,000 |
|         | 16 | \$3501 - \$4000 | 39 | \$36,001 - \$46,000 |
|         | 17 | \$4001 - \$4500 | 40 | \$46,001 - \$56,000 |
|         | 18 | \$4501 - \$5000 | 41 | \$56,001 - \$66,000 |
|         | 19 | \$5001 - \$5500 | 42 | \$66,001 - \$76,000 |
|         | 20 | \$5501 - \$6000 | 43 | \$76,001 - \$86,000 |
|         | 21 | \$6001 - \$6500 | 44 | \$86,001 - \$96,000 |
|         | 22 | \$6501 - \$7000 | 45 | \$96,001 - above    |
|         | 23 | \$7001 - \$7500 |    |                     |

#### FACILITY SECTION

6. Indicate the year in which your facility was constructed.

|         |    |                 |    |               |
|---------|----|-----------------|----|---------------|
| ANSWER: | 01 | 1972 to present | 15 | 1957 - 1958   |
|         | 02 | 1970 - 1971     | 16 | 1956 - 1957   |
|         | 03 | 1969 - 1970     | 17 | 1955 - 1956   |
|         | 04 | 1968 - 1969     | 18 | 1954 - 1955   |
|         | 05 | 1967 - 1968     | 19 | 1953 - 1954   |
|         | 06 | 1966 - 1967     | 20 | 1952 - 1953   |
|         | 07 | 1965 - 1966     | 21 | 1951 - 1952   |
|         | 08 | 1964 - 1965     | 22 | 1950 - 1951   |
|         | 09 | 1963 - 1964     | 23 | 1945 - 1949   |
|         | 10 | 1962 - 1963     | 24 | 1940 - 1944   |
|         | 11 | 1961 - 1962     | 25 | 1930 - 1939   |
|         | 12 | 1960 - 1961     | 26 | 1920 - 1929   |
|         | 13 | 1959 - 1960     | 27 | Prior to 1920 |
|         | 14 | 1958 - 1959     |    |               |

7. What is the present condition of your facilities?

|         |    |           |
|---------|----|-----------|
| ANSWER: | 01 | Excellent |
|         | 02 | Good      |
|         | 03 | Fair      |
|         | 04 | Poor      |

8. What is the total square footage of your shop, classroom, toolroom, etc.?

|         |    |                      |    |             |
|---------|----|----------------------|----|-------------|
| ANSWER: | 01 | 1200 Sq. Ft. or less | 16 | 4001 - 4200 |
|         | 02 | 1201 - 1400          | 17 | 4201 - 4400 |
|         | 03 | 1401 - 1600          | 18 | 4401 - 4600 |
|         | 04 | 1601 - 1800          | 19 | 4601 - 4800 |
|         | 05 | 1801 - 2000          | 20 | 4801 - 5000 |
|         | 06 | 2001 - 2200          | 21 | 5001 - 5300 |
|         | 07 | 2201 - 2400          | 22 | 5301 - 5600 |
|         | 08 | 2401 - 2600          | 23 | 5601 - 5900 |
|         | 09 | 2601 - 2800          | 24 | 5901 - 6200 |
|         | 10 | 2801 - 3000          | 25 | 6201 - 6500 |
|         | 11 | 3001 - 3200          | 26 | 6501 - 7000 |
|         | 12 | 3201 - 3400          | 27 | 7001 - 7500 |
|         | 13 | 3401 - 3600          | 28 | 7501 - 8000 |
|         | 14 | 3601 - 3800          | 29 | 8001 - up   |
|         | 15 | 3801 - 4000          |    |             |

#### STAFF SECTION

9. How many years have you taught a vocational or technical subject?

|         |    |                    |    |                          |
|---------|----|--------------------|----|--------------------------|
| ANSWER: | 01 | Less than one year | 17 | Sixteen years            |
|         | 02 | One year           | 18 | Seventeen years          |
|         | 03 | Two years          | 19 | Eighteen years           |
|         | 04 | Three years        | 20 | Nineteen years           |
|         | 05 | Four years         | 21 | Twenty years             |
|         | 06 | Five years         | 22 | Twenty-one years         |
|         | 07 | Six years          | 23 | Twenty-two years         |
|         | 08 | Seven years        | 24 | Twenty-three years       |
|         | 09 | Eight years        | 25 | Twenty-four years        |
|         | 10 | Nine years         | 26 | Twenty-five years        |
|         | 11 | Ten years          | 27 | Twenty-six years         |
|         | 12 | Eleven years       | 28 | Twenty-seven years       |
|         | 13 | Twelve years       | 29 | Twenty-eight years       |
|         | 14 | Thirteen years     | 30 | Twenty-nine years        |
|         | 15 | Fourteen years     | 31 | Thirty years             |
|         | 16 | Fifteen years      | 32 | Thirty-one or more years |

10. How long have you taught in your present position?

|         |    |                    |    |                          |
|---------|----|--------------------|----|--------------------------|
| ANSWER: | 01 | Less than one year | 17 | Sixteen years            |
|         | 02 | One year           | 18 | Seventeen years          |
|         | 03 | Two years          | 19 | Eighteen years           |
|         | 04 | Three years        | 20 | Nineteen years           |
|         | 05 | Four years         | 21 | Twenty years             |
|         | 06 | Five years         | 22 | Twenty-one years         |
|         | 07 | Six years          | 23 | Twenty-two years         |
|         | 08 | Seven years        | 24 | Twenty-three years       |
|         | 09 | Eight years        | 25 | Twenty-four years        |
|         | 10 | Nine years         | 26 | Twenty-five years        |
|         | 11 | Ten years          | 27 | Twenty-six years         |
|         | 12 | Eleven years       | 28 | Twenty-seven years       |
|         | 13 | Twelve years       | 29 | Twenty-eight years       |
|         | 14 | Thirteen years     | 30 | Twenty-nine years        |
|         | 15 | Fourteen years     | 31 | Thirty years             |
|         | 16 | Fifteen years      | 32 | Thirty-one or more years |

11. When was the last year you updated your skill experience by either full-time employment, part-time employment or by in-service training in the area which you teach (Summer or after school hours)?

**ANSWER:**

|                  |                              |
|------------------|------------------------------|
| 01 This year     | 04 Three years ago           |
| 02 One year ago  | 05 More than three years ago |
| 03 Two years ago | 06 Does not apply            |

12. When was the last year you were enrolled in a professional class (college)?

**ANSWER:**

|                  |                              |
|------------------|------------------------------|
| 01 This year     | 04 Three years ago           |
| 02 One year ago  | 05 More than three years ago |
| 03 Two years ago |                              |

13. Indicate the highest degree level you have attained at the present time.

**ANSWER:**

|    |                   |
|----|-------------------|
| 01 | Non-degree        |
| 02 | Associate degree  |
| 03 | Bachelor's Degree |
| 04 | Master's Degree   |
| 05 | Specialist Degree |
| 06 | Doctorate         |

## BUSINESS RELATIONS SECTION

14. How many business firms or employers that are related to your vocational or technical program do you know that will offer full-time employment to your graduates? (Note: Within a 75-mile radius)

|         |    |       |    |                     |
|---------|----|-------|----|---------------------|
| ANSWER: | 01 | One   | 11 | Eleven              |
|         | 02 | Two   | 12 | Twelve              |
|         | 03 | Three | 13 | Thirteen            |
|         | 04 | Four  | 14 | Fourteen            |
|         | 05 | Five  | 15 | Fifteen             |
|         | 06 | Six   | 16 | Sixteen - Twenty    |
|         | 07 | Seven | 17 | Twenty-one - Thirty |
|         | 08 | Eight | 18 | Thirty-one - Forty  |
|         | 09 | Nine  | 19 | Forty-one - Fifty   |
|         | 10 | Ten   | 20 | None                |
|         |    |       | 21 | Not applicable      |

15. How many employers related to your vocational or technical program have inquired about hiring graduates on a full-time basis during the last fiscal year.

ANSWER:

|    |       |    |                 |
|----|-------|----|-----------------|
| 01 | One   | 10 | Ten             |
| 02 | Two   | 11 | Eleven          |
| 03 | Three | 12 | Twelve          |
| 04 | Four  | 13 | Thirteen        |
| 05 | Five  | 14 | Fourteen        |
| 06 | Six   | 15 | Fifteen or more |
| 07 | Seven | 16 | None            |
| 08 | Eight | 17 | Not applicable  |
| 09 | Nine  |    |                 |

16. Upon graduation from high school, release from military service or completion of post secondary education, what percent of the total students enrolled have as their objective entrance into full-time employment in the occupation or related occupation for which they are being trained? (Note: Please poll all classes and calculate the overall percentage - Please read this question to the class.)

ANSWER:   01 10% - 20%                      07 71% - 80%  
               02 21% - 30%                      08 81% - 90%  
               03 31% - 40%                      09 91% - 100%  
               04 41% - 50%                      10 None  
               05 51% - 60%                      11 Not applicable  
               06 61% - 70%

17. What percent of the upcoming graduates in your program will move or commute up to 75 miles, if employment is available? (Note: Please poll all seniors and calculate percentage.)

ANSWER:   01 0% - 10%                      06 51% - 60%  
               02 11% - 20%                      07 61% - 70%  
               03 21% - 30%                      08 71% - 80%  
               04 31% - 40%                      09 81% - 90%  
               05 41% - 50%                      10 91% - 100%  
   11 Not applicable

18. How many times during the last full fiscal year did you visit related business firms with your class?

ANSWER:   01 One time                      09 Nine times  
               02 Two times                      10 Ten times  
               03 Three times                     11 Eleven times  
               04 Four times                     12 Twelve times  
               05 Five times                     13 Thirteen times  
               06 Six times                      14 Fourteen times  
               07 Seven times                   15 Fifteen or more times  
               08 Eight times                   16 None  
   17 Not applicable

#### DISTRICT SUPERVISORY VISITS

19. How many times was your district-area supervisor in your classroom, shop or lab or accompanied you in visiting training stations during the last fiscal year? (Note: Do not count contest or P.I. meetings.)

ANSWER    01 One time                      07 Seven times  
               02 Two times                      08 Eight times  
               03 Three times                     09 Nine times  
               04 Four times                     10 Ten times  
               05 Five times                     11 None  
               06 Six times                      12 Not applicable

#### YOUTH ORGANIZATIONS

20. Circle the appropriate number if you have one of the following organizations:

ANSWER:   01 DECA - Distributive Education Clubs of America  
               02 FFA - Future Farmers of America  
               03 FBLA - Future Business Leaders of America  
               04 VICA - Vocational Industrial Clubs of America  
               05 FHA - Future Homemakers of America  
               06 None

APPENDIX C

SECONDARY FOLLOW UP PRINTOUT



**STATE DEPARTMENT OF VOCATIONAL & TECHNICAL EDUCATION**  
**DIVISION OF RESEARCH, PLANNING, AND EVALUATION**  
**EVALUATION UNIT**

**\*\* STUDENT FOLLOW-UP REPORT \*\***

|              |                       |             |       |
|--------------|-----------------------|-------------|-------|
| School Code  | 000111222             |             |       |
| Name         | Stevenson High School |             |       |
| Program Code | 170302                | School Year | 73-74 |
| Name         | Auto Mechanics        |             |       |

| . . . . . DESCRIPTION . . . . .               | SCHOOL<br>NUMBER | PERCENT | STATE<br>PERCENT |
|---|------------------|---------|------------------|
| <b>TOTAL GRADUATES</b>                        | 19               | 52.8    | 30.9             |
| <b>GRADUATES AVAILABLE FOR PLACEMENT</b>      | 11               | 57.9    | 57.0             |
| Graduates employed in related occupations     | 9                | 81.8    | 66.7             |
| Graduates employed in non-related occupations | 2                | 18.2    | 27.3             |
| Graduates seeking employment                  |                  |         | 3.7              |
| Graduates employed part-time                  |                  |         | 2.3              |
| <b>GRADUATES NOT AVAILABLE FOR EMPLOYMENT</b> | 7                | 36.8    | 43.0             |
| Graduates continuing related education        | 2                | 28.6    | 41.1             |
| Graduates continuing non-related education    | 1                | 14.3    | 19.0             |
| Graduates in armed forces                     | 4                | 57.1    | 27.6             |
| Graduates not in labor force                  |                  |         | .6               |
| <b>UNKNOWN</b>                                | 1                | 05.3    | 11.7             |
| <b>STUDENT DROPOUT</b>                        | 5                | 13.9    | 10.4             |
| Dropout employed in related occupations       | 2                | 40.0    | 14.5             |
| <b>RETENTION</b>                              | 3                | 50.0    |                  |
| <b>PRODUCT INDEX</b>                          |                  | .66     |                  |

Data for the Student Follow-Up Report is taken from  
the Student Status Report completed by the teacher.

APPENDIX D

INTERCORRELATIONS AMONG ALL VARIABLES  
FOR VOCATIONAL AGRICULTURE

# INTERCORRELATIONS AMONG ALL VARIABLES FOR VOCATIONAL AGRICULTURE

| Variables               | PI-3 | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   | 32   | 33   | 34   | 35   | 36   | 37   |  |  |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|
| 2. Product Index-1973   | .402 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 3. Total OAR            | .357 | .148 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 4. Administration       | .366 | .127 | .601 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 5. Staff                | .214 | .087 | .785 | .449 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 6. Evaluation           | .338 | .208 | .607 | .467 | .536 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 7. Curriculum           | .336 | .266 | .783 | .525 | .677 | .575 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 8. Inst. Materials      | .210 | .067 | .753 | .500 | .717 | .434 | .619 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 9. Inst. Procedures     | .249 | .120 | .833 | .401 | .611 | .473 | .706 | .726 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 10. Library Materials   | .408 | .043 | .723 | .406 | .484 | .451 | .502 | .676 | .677 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 11. Community Relation  | .336 | .151 | .814 | .419 | .662 | .501 | .672 | .568 | .667 | .518 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 12. Advisory Committee  | .035 | .107 | .248 | .179 | .150 | .121 | .229 | .257 | .143 | .152 | .311 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 13. Public Relations    | .074 | .158 | .721 | .386 | .502 | .384 | .594 | .454 | .541 | .417 | .623 | .134 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 14. Student Testing     | .226 | .169 | .266 | .279 | .133 | .231 | .319 | .222 | .266 | .157 | .261 | .084 | .341 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 15. Facility & Equip.   | .284 | .092 | .778 | .428 | .494 | .411 | .436 | .468 | .592 | .681 | .596 | .146 | .499 | .123 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 16. Graduate Placement  | .245 | .133 | .531 | .428 | .330 | .345 | .434 | .363 | .395 | .303 | .454 | .310 | .533 | .266 | .325 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 17. Stud. Placement     | .297 | .126 | .683 | .487 | .479 | .517 | .613 | .538 | .555 | .479 | .567 | .567 | .521 | .259 | .506 | .557 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 18. Stud. Organization  | .192 | .201 | .767 | .319 | .687 | .416 | .619 | .527 | .664 | .367 | .367 | .616 | .651 | .070 | .421 | .452 | .446 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 19. Supplies            | .053 | .115 | .032 | .062 | .010 | .056 | .087 | .010 | .068 | .009 | .038 | .022 | .018 | .225 | .029 | .272 | .210 | .000 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 20. Services            | .197 | .093 | .029 | .033 | .086 | .194 | .058 | .140 | .056 | .099 | .086 | .040 | .001 | .136 | .019 | .108 | .124 | .006 | .447 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 21. Equip. Expenditures | .288 | .141 | .456 | .194 | .341 | .295 | .416 | .338 | .494 | .273 | .355 | .143 | .304 | .280 | .396 | .331 | .420 | .441 | .270 | .250 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 22. Equip. Needed       | .037 | .004 | .162 | .119 | .021 | .264 | .079 | .153 | .185 | .244 | .124 | .132 | .115 | .103 | .156 | .017 | .151 | .021 | .088 | .064 | .063 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 23. Equip. Value        | .433 | .286 | .491 | .269 | .293 | .282 | .318 | .478 | .433 | .604 | .295 | .028 | .355 | .364 | .425 | .279 | .273 | .374 | .018 | .025 | .306 | .058 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 24. Facility Age        | .108 | .207 | .216 | .063 | .000 | .183 | .136 | .101 | .055 | .084 | .198 | .049 | .248 | .111 | .415 | .254 | .100 | .011 | .064 | .317 | .298 | .141 | .025 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 25. Facility Condition  | .387 | .046 | .393 | .286 | .336 | .360 | .151 | .160 | .179 | .242 | .334 | .080 | .339 | .277 | .509 | .244 | .193 | .270 | .016 | .024 | .294 | .022 | .400 | .382 |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 26. Facility Size       | .173 | .090 | .209 | .173 | .116 | .140 | .124 | .106 | .081 | .096 | .021 | .240 | .099 | .225 | .409 | .252 | .141 | .065 | .069 | .104 | .101 | .256 | .090 | .303 | .370 |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 27. Tot. Teaching Exp.  | .420 | .203 | .188 | .281 | .145 | .274 | .131 | .007 | .079 | .210 | .198 | .028 | .001 | .109 | .219 | .253 | .204 | .065 | .021 | .043 | .173 | .116 | .394 | .011 | .294 | .172 |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 28. Yrs.-Pres. Position | .385 | .183 | .089 | .235 | .076 | .239 | .139 | .047 | .002 | .149 | .169 | .075 | .050 | .033 | .076 | .173 | .088 | .041 | .088 | .042 | .038 | .056 | .279 | .078 | .161 | .114 | .881 |      |      |      |      |      |      |      |      |      |      |  |  |
| 29. Skill Exp.          | .171 | .142 | .161 | .136 | .110 | .028 | .205 | .167 | .244 | .039 | .039 | .223 | .166 | .043 | .024 | .082 | .234 | .220 | .143 | .047 | .258 | .224 | .068 | .081 | .306 | .080 | .362 | .339 |      |      |      |      |      |      |      |      |      |  |  |
| 30. Prof. Improvement   | .049 | .133 | .018 | .035 | .078 | .011 | .073 | .034 | .009 | .151 | .153 | .087 | .112 | .032 | .158 | .068 | .119 | .136 | .055 | .092 | .051 | .178 | .143 | .062 | .176 | .277 | .301 | .307 | .478 |      |      |      |      |      |      |      |      |  |  |
| 31. Degree Level        | .261 | .244 | .197 | .278 | .182 | .235 | .001 | .167 | .140 | .241 | .127 | .018 | .060 | .228 | .132 | .191 | .057 | .067 | .062 | .203 | .205 | .012 | .337 | .114 | .203 | .074 | .583 | .492 | .108 | .298 |      |      |      |      |      |      |      |  |  |
| 32. Employers Known     | .156 | .021 | .181 | .124 | .184 | .036 | .172 | .215 | .180 | .106 | .191 | .069 | .008 | .238 | .147 | .090 | .258 | .096 | .275 | .295 | .101 | .048 | .253 | .029 | .120 | .210 | .087 | .056 | .128 | .117 | .168 |      |      |      |      |      |      |  |  |
| 33. Employers Request   | .154 | .056 | .159 | .149 | .248 | .274 | .128 | .204 | .146 | .251 | .142 | .081 | .015 | .178 | .074 | .144 | .287 | .122 | .094 | .195 | .085 | .002 | .356 | .222 | .037 | .264 | .307 | .286 | .160 | .114 | .132 | .553 |      |      |      |      |      |  |  |
| 34. Stud. Desire        | .246 | .047 | .413 | .129 | .214 | .249 | .297 | .197 | .374 | .346 | .443 | .257 | .387 | .104 | .365 | .394 | .334 | .316 | .101 | .036 | .139 | .063 | .173 | .198 | .169 | .253 | .145 | .147 | .005 | .114 | .010 | .285 | .151 |      |      |      |      |  |  |
| 35. Graduate Mobility   | .028 | .048 | .023 | .193 | .109 | .008 | .151 | .039 | .010 | .068 | .019 | .088 | .078 | .090 | .048 | .110 | .037 | .198 | .071 | .014 | .059 | .164 | .220 | .049 | .081 | .282 | .012 | .013 | .146 | .111 | .037 | .105 | .030 | .293 |      |      |      |  |  |
| 36. Field Trips         | .283 | .170 | .166 | .070 | .040 | .085 | .254 | .098 | .193 | .218 | .242 | .035 | .211 | .352 | .051 | .380 | .274 | .082 | .145 | .003 | .105 | .091 | .326 | .013 | .002 | .005 | .389 | .333 | .148 | .115 | .128 | .177 | .307 | .185 | .221 |      |      |  |  |
| 37. Supervisory Visits  | .191 | .231 | .089 | .207 | .030 | .217 | .089 | .073 | .061 | .103 | .090 | .044 | .125 | .155 | .028 | .261 | .230 | .140 | .131 | .283 | .044 | .091 | .090 | .039 | .063 | .219 | .317 | .246 | .030 | .051 | .191 | .311 | .370 | .073 | .003 | .229 |      |  |  |
| 38. School Wealth       | .064 | .031 | .103 | .265 | .066 | .123 | .111 | .100 | .046 | .045 | .116 | .280 | .186 | .304 | .048 | .189 | .071 | .148 | .032 | .043 | .039 | .082 | .291 | .027 | .295 | .030 | .069 | .045 | .112 | .144 | .249 | .183 | .259 | .064 | .185 | .056 | .262 |  |  |

N=53

Correlation coefficients  $\geq .273$  are significant at the .05 level

Correlation coefficients  $\geq .354$  are significant at the .01 level

APPENDIX E

INTERCORRELATIONS AMONG ALL VARIABLES  
FOR DISTRIBUTIVE EDUCATION

# INTERCORRELATIONS AMONG ALL VARIABLES FOR DISTRIBUTIVE EDUCATION

| Variables              | PI-3  | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13   | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    | 25    | 26    | 27    | 28    | 29    | 30    | 31    | 32    | 33    | 34   | 35    | 36   | 37   |  |  |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|------|--|--|
| 2.Product Index-1973   | .159  |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 3.Total OAR            | .374  | +.153 |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 4.Administration       | .391  | .159  | .470  |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 5.Staff                | .261  | +.353 | .706  | .084  |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 6.Evaluation           | .413  | +.386 | .527  | .333  | .131  |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 7.Curriculum           | .573  | +.195 | .438  | +.038 | .593  | .135  |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 8.Inst.Materials       | .002  | +.116 | .390  | .012  | .435  | +.016 | .451  |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 9.Inst.Procedures      | .387  | .060  | .658  | .196  | .488  | .327  | .371  | .662  |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 10.Library Materials   | .000  | +.165 | .157  | .339  | .315  | +.384 | .247  | .488  | .113  |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 11.Community Relations | .371  | +.119 | .939  | .514  | .547  | .435  | .447  | .342  | .540  | .292  |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 12.Advisory Committee  | +.016 | +.198 | .740  | +.052 | .546  | .290  | .188  | .345  | .561  | +.036 | .679  |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 13.Public Relations    | .371  | +.146 | .836  | .287  | .549  | .585  | .511  | .413  | .434  | .001  | .805  | .618  |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 14.Student Testing     | .459  | +.068 | .571  | .533  | .112  | .350  | .401  | .229  | .233  | .390  | .789  | .294  | .599 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 15.Facility & Equip.   | .008  | .121  | .629  | .316  | .341  | .575  | +.114 | .360  | .666  | +.203 | .427  | .597  | .481 | .004  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 16.Graduate Placement  | +.202 | +.135 | +.035 | .085  | +.091 | .121  | .063  | .345  | +.155 | .136  | .008  | +.325 | .291 | .106  | .029  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 17.Stud. Placement     | .071  | +.137 | .178  | .247  | .060  | .301  | +.143 | .034  | .224  | +.049 | .160  | +.160 | .013 | .070  | .282  | .441  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 18.Stud. Organization  | .423  | +.117 | .868  | .328  | .561  | .505  | .490  | .229  | .539  | +.063 | .842  | .783  | .774 | .565  | .528  | +.265 | +.107 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 19.Supplies            | .063  | +.396 | .330  | .310  | .576  | .255  | .177  | .048  | .024  | .271  | .178  | +.060 | .260 | +.087 | .153  | .254  | .132  | .018  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 20.Services            | .213  | .361  | +.096 | .185  | .178  | .679  | .212  | +.008 | .360  | .188  | +.026 | +.017 | .002 | +.051 | .497  | +.026 | .462  | +.004 | +.003 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 21.Equip. Expenditures | +.084 | +.140 | .335  | +.090 | .576  | .183  | .423  | .362  | +.047 | .219  | .321  | .317  | .548 | .144  | .033  | .378  | .194  | .341  | .198  | .592  |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 22.Equip. Needed       | +.369 | .233  | +.016 | .198  | .243  | .123  | .499  | +.197 | +.387 | .345  | +.051 | .013  | .236 | +.068 | .209  | .347  | +.090 | +.002 | .078  | .243  | .267  |       |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 23.Equip. Value        | +.257 | .426  | +.011 | .104  | .132  | .533  | .022  | .233  | .105  | .153  | +.018 | +.077 | .037 | +.084 | +.088 | .242  | +.067 | +.001 | +.063 | .742  | .598  | .433  |       |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 24.Facility Age        | .230  | .094  | .321  | .391  | .033  | .544  | +.095 | .164  | .320  | .378  | .187  | .181  | .393 | .148  | .572  | .105  | .124  | .384  | +.060 | .251  | .050  | .503  | .248  |       |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 25.Facility Condition  | .433  | .371  | .453  | .020  | .227  | .208  | .475  | .207  | .290  | +.082 | .478  | .290  | .644 | .414  | +.020 | .103  | .165  | .377  | .090  | .264  | .201  | .083  | .000  | .020  |       |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 26.Facility Size       | .280  | .201  | .282  | .293  | +.096 | .625  | +.235 | .063  | .492  | .552  | .111  | .246  | .276 | +.026 | .756  | +.067 | .178  | .341  | +.185 | .572  | .263  | .301  | .127  | .814  | .021  |       |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 27.Tot.Teaching Exp.   | .395  | .599  | .002  | .459  | +.145 | .069  | +.060 | .168  | .247  | .051  | +.058 | .433  | .064 | .011  | .118  | .364  | .251  | .245  | .163  | .143  | .188  | .154  | .157  | .291  | .331  | .365  |       |       |       |       |       |       |       |      |       |      |      |  |  |
| 28.Yrs.-Pres.Position  | .554  | .606  | .168  | .406  | .133  | .224  | .055  | +.078 | .256  | .155  | .189  | .245  | .236 | .204  | .104  | .252  | .380  | .008  | .021  | +.177 | +.169 | .041  | +.031 | .145  | .519  | .345  | .823  |       |       |       |       |       |       |      |       |      |      |  |  |
| 29.Skill Exp.          | +.402 | +.558 | .167  | +.048 | .173  | .092  | +.046 | .238  | .063  | .379  | .185  | .198  | .078 | .003  | .249  | .311  | .302  | +.066 | .350  | .324  | .045  | +.216 | +.399 | +.503 | .195  | +.290 | +.260 | +.206 |       |       |       |       |       |      |       |      |      |  |  |
| 30.Prof. Improvement   | .000  | .154  | .154  | .154  | .000  | .234  | .116  | .155  | +.077 | .464  | .077  | .387  | .466 | +.038 | .386  | .077  | .463  | .431  | .253  | .123  | .376  | .467  | .154  | .388  | .267  | .450  | +.077 | +.038 | +.156 |       |       |       |       |      |       |      |      |  |  |
| 31.Degree Level        | .401  | .498  | +.064 | .339  | +.267 | .162  | .076  | +.069 | .101  | +.065 | .072  | .513  | .000 | .069  | +.082 | .347  | .413  | .337  | .170  | .217  | .365  | .058  | +.072 | .121  | .412  | .217  | .892  | .866  | +.217 | +.300 |       |       |       |      |       |      |      |  |  |
| 32.Employers Known     | .351  | .493  | +.066 | .403  | .135  | .088  | .159  | .524  | .126  | .238  | .142  | .441  | .194 | .181  | .120  | .193  | .084  | .168  | .355  | .028  | .440  | .130  | +.030 | .060  | .225  | .143  | .565  | .569  | .383  | +.253 | .658  |       |       |      |       |      |      |  |  |
| 33.Employers Request   | .267  | .011  | .108  | .202  | +.074 | .390  | +.259 | .690  | .188  | .325  | .094  | .108  | .025 | +.017 | +.005 | .114  | .335  | .037  | .317  | +.322 | .347  | .043  | .501  | .140  | .170  | .087  | .160  | .490  | .088  | +.319 | .449  | .590  |       |      |       |      |      |  |  |
| 34.Stud. Desire        | .029  | .288  | .347  | .476  | .248  | .234  | .161  | .078  | .116  | .281  | .420  | .179  | .333 | .341  | .003  | +.022 | .282  | .430  | .109  | .693  | .558  | .447  | .727  | .191  | .164  | .154  | .025  | .066  | .248  | .263  | .230  | +.071 | .294  |      |       |      |      |  |  |
| 35.Graduate Mobility   | +.183 | .000  | .578  | +.399 | +.403 | .218  | .032  | .451  | .097  | .342  | .482  | .506  | .273 | .160  | .710  | .168  | .172  | .355  | .152  | .455  | .101  | .250  | .237  | +.093 | +.020 | .388  | .241  | .215  | .411  | .039  | +.049 | .085  | +.043 | .088 |       |      |      |  |  |
| 36.Field Trips         | .530  | .299  | .366  | .441  | .480  | .546  | .165  | .254  | .097  | .128  | .188  | .052  | .254 | .004  | .281  | +.062 | .194  | .263  | .655  | .301  | .030  | .005  | .186  | .349  | +.062 | .294  | .189  | .218  | .110  | .155  | .197  | .458  | .513  | .017 | .154  |      |      |  |  |
| 37.Supervisory Visits  | .507  | +.367 | .455  | .308  | .221  | .729  | .218  | .182  | .364  | .201  | .398  | .145  | .222 | .309  | .269  | +.226 | .483  | .384  | .257  | .694  | .414  | .348  | .550  | .249  | .063  | .312  | +.029 | .192  | +.001 | +.357 | .203  | .288  | .527  | .324 | +.180 | .618 |      |  |  |
| 38.School Wealth       | +.011 | +.047 | +.137 | .083  | +.467 | .374  | .530  | .268  | .054  | +.194 | .111  | +.174 | .216 | .014  | .137  | .072  | .556  | .346  | +.071 | .747  | .707  | +.069 | +.637 | +.006 | +.089 | .294  | .261  | .361  | .251  | +.419 | .508  | .196  | .599  | .701 | .235  | .045 | .433 |  |  |

N=13

Correlation coefficients  $\geq .553$  are significant at the .05 level

Correlation coefficients  $\geq .684$  are significant at the .01 level

APPENDIX F

INTERCORRELATIONS AMONG ALL VARIABLES  
FOR BUSINESS AND OFFICE EDUCATION

# INTERCORRELATIONS AMONG ALL VARIABLES FOR BUSINESS AND OFFICE EDUCATION

| Variables              | PI-3  | 2     | 3     | 4     | 5    | 6     | 7    | 8     | 9    | 10    | 11    | 12   | 13   | 14    | 15   | 16    | 17    | 18    | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   | 32   | 33   | 34   | 35   | 36   | 37   |  |
|------------------------|-------|-------|-------|-------|------|-------|------|-------|------|-------|-------|------|------|-------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| 2.Product Index-1973   | .772  |       |       |       |      |       |      |       |      |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 3.Total OAR            | .633  | .665  |       |       |      |       |      |       |      |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 4.Administration       | +.081 | +.045 | .054  |       |      |       |      |       |      |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 5.Staff                | .348  | .284  | .606  | .550  |      |       |      |       |      |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 6.Evaluation           | .430  | .494  | .850  | +.279 | .332 |       |      |       |      |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 7.Curriculum           | .633  | .656  | .671  | .191  | .519 | .552  |      |       |      |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 8.Inst. Materials      | .096  | .160  | .481  | .404  | .589 | .530  | .301 |       |      |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 9.Inst. Procedures     | .309  | .272  | .792  | +.018 | .596 | .860  | .405 | .717  |      |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 10.Library Materials   | .385  | .623  | .643  | +.055 | .518 | .642  | .524 | .348  | .596 |       |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 11.Community Relations | .680  | .589  | .858  | +.273 | .359 | .873  | .434 | .392  | .739 | .580  |       |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 12.Advisory Committee  | .251  | .567  | .543  | +.093 | .140 | .494  | .132 | .360  | .283 | .277  | .567  |      |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 13.Public Relations    | .675  | .740  | .880  | +.234 | .264 | .877  | .539 | .386  | .694 | .524  | .914  | .649 |      |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 14.Student Testing     | .620  | .662  | .794  | +.004 | .361 | .511  | .603 | +.048 | .409 | .515  | .558  | .265 | .644 |       |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 15.Facility & Equip.   | .481  | .527  | .933  | .281  | .733 | .768  | .646 | .648  | .818 | .513  | .721  | .511 | .777 | .629  |      |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 16.Graduate Placement  | .795  | .795  | .778  | .170  | .510 | .486  | .686 | .172  | .358 | .658  | .653  | .369 | .627 | .813  | .606 |       |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 17.Stud. Placement     | .563  | .718  | .596  | +.045 | .440 | .576  | .665 | .202  | .381 | .880  | .611  | .302 | .547 | .468  | .454 | .740  |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 18.Stud. Organization  | .281  | .488  | .205  | .290  | .516 | +.011 | .362 | .512  | .129 | .693  | .004  | .136 | .025 | .358  | .170 | .470  |       |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 19.Supplies            | .253  | .235  | .027  | -.064 | .283 | .004  | .191 | .277  | .032 | .037  | .069  | .372 | .186 | .207  | .064 | .083  | .129  | .007  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 20.Services            | +.092 | .358  | +.052 | .271  | .379 | +.305 | .136 | .131  | .080 | +.011 | .264  | .573 | .400 | .210  | .034 | .026  | .265  | .337  | .199 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 21.Equip.Expenditures  | +.179 | -.055 | .129  | .317  | .083 | .037  | .370 | .474  | .289 | .032  | .048  | .232 | .074 | .027  | .170 | .023  | .298  | .006  | .205 | .228 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 22.Equip. Needed       | +.178 | -.056 | +.471 | +.146 | .281 | .425  | .141 | .457  | .639 | .152  | .362  | .067 | .459 | .265  | .611 | .004  | .296  | .289  | .240 | .168 | .353 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 23.Equip. Value        | .473  | .772  | .649  | .137  | .148 | .599  | .317 | .418  | .409 | .529  | .635  | .830 | .739 | .479  | .514 | .606  | .455  | .135  | .298 | .415 | .393 | .062 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 24.Facility Age        | .054  | .337  | .228  | .406  | .073 | .245  | .370 | .632  | .196 | .009  | .034  | .376 | .307 | +.013 | .374 | .085  | .004  | +.067 | .143 | .479 | .348 | .307 | .466 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 25.Facility Condition  | .437  | .223  | .550  | .159  | .182 | .499  | .224 | .544  | .533 | .118  | .578  | .370 | .646 | .242  | .618 | .248  | .085  | .405  | .064 | .223 | .372 | .813 | .372 | .497 |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 26.Facility Size       | .548  | .298  | .511  | +.038 | .340 | .160  | .289 | .292  | .182 | .029  | .372  | .088 | .370 | .740  | .433 | .487  | .067  | .087  | .068 | .410 | .170 | .382 | .053 | .372 | .248 |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 27.Tot.Teaching Exp.   | .100  | +.036 | .243  | .449  | .731 | .000  | .188 | .454  | .211 | .064  | .073  | .220 | .083 | .004  | .376 | .218  | .036  | .074  | .665 | .326 | .078 | .059 | .078 | .013 | .064 | .204 |      |      |      |      |      |      |      |      |      |      |      |  |
| 28.Yrs.-Pres.Position  | .063  | .095  | .187  | .410  | .617 | +.002 | .292 | .418  | .155 | .004  | +.025 | .088 | .150 | .004  | .301 | .182  | +.022 | .016  | .655 | .325 | .004 | .043 | .025 | .098 | .037 | .135 | .944 |      |      |      |      |      |      |      |      |      |      |  |
| 29.Skill Exp.          | +.451 | +.645 | +.776 | .064  | .325 | +.617 | .291 | .228  | .516 | .716  | .713  | .594 | .685 | .750  | .580 | .783  | .580  | .327  | .098 | .000 | .391 | .064 | .783 | .032 | .227 | .341 | .065 | .032 |      |      |      |      |      |      |      |      |      |  |
| 30.Prof. Improvement   | .000  | .095  | +.021 | .042  | .129 | .177  | .010 | .285  | .000 | .075  | .240  | .141 | .037 | .323  | .085 | .113  | .266  | .329  | .059 | .447 | .032 | .283 | .124 | .133 | .162 | .519 | .032 | .074 | .075 |      |      |      |      |      |      |      |      |  |
| 31.Degree Level        | .119  | .537  | .329  | +.119 | .120 | .300  | .329 | .120  | .000 | .422  | .240  | .734 | .302 | .241  | .239 | .392  | .478  | .121  | .545 | .456 | .120 | .450 | .664 | .240 | .210 | .063 | .301 | .300 | .462 | .140 |      |      |      |      |      |      |      |  |
| 32.Employers Known     | .695  | .750  | .881  | .009  | .416 | .790  | .622 | .409  | .596 | .687  | .888  | .597 | .859 | .663  | .740 | .859  | .770  | .194  | .035 | .316 | .077 | .162 | .729 | .237 | .483 | .279 | .095 | .034 | .811 | .349 | .424 |      |      |      |      |      |      |  |
| 33.Employers Request   | .482  | .606  | .697  | .342  | .316 | .688  | .338 | .221  | .497 | .757  | .776  | .628 | .651 | .542  | .477 | .693  | .710  | .226  | .282 | .164 | .050 | .154 | .744 | .119 | .058 | .226 | .220 | .144 | .846 | .233 | .653 | .782 |      |      |      |      |      |  |
| 34.Stud. Desire        | .498  | .579  | .364  | .418  | .108 | .570  | .506 | .020  | .175 | .381  | .582  | .372 | .627 | .177  | .242 | .340  | .674  | .027  | .116 | .771 | .545 | .135 | .354 | .149 | .173 | .042 | .340 | .338 | .191 | .347 | .354 | .589 | .420 |      |      |      |      |  |
| 35.Graduate Mobility   | +.447 | .765  | .682  | .188  | .185 | .695  | .313 | .377  | .457 | .637  | .761  | .869 | .811 | .422  | .561 | .585  | .651  | .153  | .186 | .572 | .186 | .002 | .894 | .314 | .320 | .036 | .015 | .144 | .776 | .233 | .653 | .820 | .796 | .597 |      |      |      |  |
| 36.Field Trips         | .685  | .806  | .780  | .102  | .635 | .676  | .698 | .459  | .652 | .856  | .707  | .353 | .731 | .584  | .722 | .754  | .853  | .655  | .099 | .127 | .009 | .145 | .563 | .220 | .251 | .222 | .094 | .011 | .629 | .016 | .275 | .792 | .609 | .511 | .675 |      |      |  |
| 37.Supervisory Visits  | .317  | .635  | .695  | .231  | .174 | .775  | .284 | .394  | .548 | .573  | .774  | .852 | .837 | .375  | .626 | .433  | .577  | .024  | .078 | .606 | .116 | .145 | .774 | .295 | .372 | .051 | .068 | .203 | .683 | .180 | .569 | .763 | .710 | .628 | .953 | .622 |      |  |
| 38.School Health       | +.218 | .123  | .258  | .371  | .440 | .369  | .231 | .844  | .460 | .315  | .112  | .441 | .195 | .223  | .470 | +.052 | .193  | .092  | .346 | .334 | .285 | .159 | .356 | .677 | .191 | .498 | .380 | .346 | .070 | .180 | .391 | .197 | .127 | .073 | .379 | .325 | .435 |  |

N=11

Correlation coefficients  $\geq .602$  are significant at the .05 level

Correlation coefficients  $\geq .735$  are significant at the .01 level

APPENDIX G

INTERCORRELATIONS AMONG ALL VARIABLES  
FOR VOCATIONAL CARPENTRY



# INTERCORRELATIONS AMONG ALL VARIABLES FOR VOCATIONAL CARPENTRY

| Variables              | PI-3 | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   | 32   | 33   | 34   | 35   | 36   | 37   |  |  |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|
| 2.Product Index-1973   | .083 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 3.Total QAR            | .333 | .166 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 4.Administration       | .700 | .016 | .300 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 5.Staff                | .159 | .310 | .831 | .109 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 6.Evaluation           | .376 | .317 | .861 | .125 | .679 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 7.Curriculum           | .616 | .383 | .683 | .550 | .529 | .786 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 8.Inst.Materials       | .349 | .074 | .749 | .246 | .609 | .619 | .553 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 9.Inst.Procedures      | .124 | .083 | .836 | .092 | .628 | .924 | .694 | .692 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 10.Library Materials   | .200 | .150 | .450 | .750 | .159 | .200 | .450 | .425 | .376 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 11.Community Relations | .266 | .200 | .883 | .166 | .781 | .928 | .700 | .698 | .953 | .333 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 12.Advisory Committee  | .316 | .100 | .733 | .583 | .470 | .610 | .616 | .280 | .644 | .700 | .650 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 13.Public Relations    | .317 | .025 | .937 | .184 | .755 | .819 | .510 | .803 | .836 | .351 | .887 | .602 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 14.Student Testing     | .426 | .251 | .560 | .744 | .552 | .478 | .728 | .410 | .508 | .694 | .627 | .702 | .436 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 15.Facility & Equip.   | .500 | .600 | .200 | .633 | .033 | .100 | .166 | .408 | .008 | .583 | .033 | .300 | .217 | .217 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 16.Graduate Placement  | .317 | .267 | .719 | .125 | .459 | .924 | .728 | .649 | .932 | .292 | .887 | .510 | .743 | .466 | .092 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 17.Stud. Placement     | .333 | .183 | .750 | .183 | .487 | .928 | .816 | .434 | .887 | .300 | .816 | .716 | .644 | .468 | .050 | .870 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 18.Stud. Organization  | .254 | .101 | .898 | .050 | .854 | .740 | .525 | .658 | .663 | .135 | .711 | .508 | .825 | .272 | .169 | .493 | .610 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 19.Supplies            | .487 | .428 | .571 | .201 | .754 | .523 | .630 | .682 | .383 | .008 | .512 | .075 | .493 | .409 | .134 | .358 | .319 | .675 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 20.Services            | .008 | .666 | .725 | .151 | .770 | .792 | .557 | .590 | .699 | .008 | .759 | .244 | .656 | .330 | .413 | .699 | .607 | .686 | .634 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 21.Equip.Expenditures  | .170 | .570 | .127 | .144 | .270 | .068 | .127 | .008 | .307 | .536 | .170 | .493 | .239 | .081 | .263 | .247 | .212 | .138 | .665 | .275 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 22.Equip. Needed       | .175 | .092 | .594 | .443 | .227 | .298 | .276 | .705 | .415 | .753 | .359 | .443 | .609 | .302 | .569 | .373 | .234 | .391 | .130 | .237 | .453 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 23.Equip. Value        | .502 | .560 | .301 | .343 | .569 | .218 | .502 | .269 | .025 | .075 | .158 | .016 | .126 | .386 | .058 | .016 | .075 | .434 | .848 | .394 | .829 | .092 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 24.Facility Age        | .410 | .025 | .117 | .376 | .350 | .168 | .376 | .350 | .231 | .158 | .376 | .075 | .180 | .638 | .184 | .231 | .058 | .000 | .493 | .072 | .217 | .138 | .369 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 25.Facility Condition  | .138 | .772 | .019 | .435 | .399 | .248 | .158 | .025 | .074 | .574 | .198 | .386 | .029 | .004 | .752 | .164 | .069 | .140 | .514 | .641 | .748 | .487 | .517 | .218 |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 26.Facility Size       | .401 | .359 | .111 | .769 | .051 | .223 | .128 | .091 | .223 | .555 | .145 | .512 | .017 | .433 | .692 | .360 | .111 | .060 | .021 | .467 | .157 | .231 | .240 | .133 | .614 |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 27.Tot.Teaching Exp.   | .025 | .751 | .168 | .210 | .004 | .033 | .236 | .090 | .118 | .320 | .126 | .523 | .288 | .110 | .421 | .059 | .033 | .077 | .442 | .418 | .732 | .203 | .491 | .008 | .727 | .519 |      |      |      |      |      |      |      |      |      |      |      |  |  |
| 28.Yrs.-Pres.Position  | .153 | .434 | .263 | .102 | .081 | .252 | .076 | .178 | .256 | .068 | .297 | .561 | .371 | .102 | .068 | .179 | .289 | .164 | .373 | .163 | .608 | .000 | .397 | .068 | .429 | .283 | .857 |      |      |      |      |      |      |      |      |      |      |  |  |
| 29.Skill Exp.          | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |      |      |      |      |      |      |      |      |      |  |  |
| 30.Prof. Improvement   | .273 | .410 | .273 | .136 | .483 | .550 | .547 | .000 | .343 | .410 | .410 | .136 | .137 | .206 | .410 | .343 | .547 | .417 | .552 | .485 | .559 | .550 | .550 | .275 | .650 | .210 | .346 | .000 | .000 |      |      |      |      |      |      |      |      |  |  |
| 31.Degree Level        | .782 | .074 | .149 | .521 | .300 | .037 | .447 | .076 | .112 | .037 | .149 | .074 | .224 | .149 | .409 | .037 | .186 | .151 | .169 | .358 | .190 | .187 | .299 | .261 | .199 | .344 | .113 | .038 | .000 | .000 |      |      |      |      |      |      |      |  |  |
| 32.Employers Known     | .175 | .133 | .125 | .209 | .308 | .159 | .451 | .106 | .302 | .301 | .125 | .108 | .163 | .260 | .150 | .386 | .376 | .297 | .059 | .131 | .213 | .046 | .218 | .344 | .139 | .120 | .177 | .226 | .000 | .000 | .137 | .523 |      |      |      |      |      |  |  |
| 33.Employers Request   | .447 | .244 | .295 | .430 | .038 | .313 | .033 | .129 | .313 | .008 | .168 | .084 | .258 | .338 | .354 | .322 | .320 | .283 | .195 | .478 | .262 | .385 | .338 | .775 | .060 | .484 | .166 | .034 | .000 | .000 | .138 | .509 | .186 |      |      |      |      |  |  |
| 34.Stud. Desire        | .218 | .336 | .831 | .092 | .944 | .708 | .436 | .957 | .616 | .084 | .798 | .470 | .822 | .493 | .109 | .506 | .470 | .811 | .644 | .761 | .167 | .240 | .468 | .286 | .374 | .000 | .106 | .283 | .000 | .000 | .414 | .338 | .447 | .089 |      |      |      |  |  |
| 35.Graduate Mobility   | .000 | .470 | .865 | .084 | .860 | .814 | .546 | .630 | .755 | .142 | .806 | .436 | .780 | .358 | .235 | .662 | .655 | .846 | .601 | .948 | .133 | .371 | .350 | .012 | .434 | .267 | .182 | .000 | .000 | .414 | .413 | .232 | .510 | .838 |      |      |      |  |  |
| 36.Field Trips         | .408 | .383 | .314 | .238 | .274 | .196 | .110 | .530 | .517 | .306 | .459 | .127 | .495 | .115 | .119 | .354 | .102 | .199 | .034 | .219 | .504 | .427 | .474 | .222 | .161 | .266 | .340 | .113 | .000 | .000 | .349 | .609 | .102 | .185 | .248 | .296 |      |  |  |
| 37.Supervisory Visits  | .716 | .297 | .331 | .451 | .072 | .341 | .323 | .478 | .175 | .161 | .255 | .085 | .440 | .196 | .263 | .406 | .153 | .164 | .313 | .215 | .008 | .482 | .235 | .123 | .055 | .013 | .081 | .078 | .000 | .139 | .304 | .111 | .012 | .266 | .145 | .152 |      |  |  |
| 38.School Health       | .383 | .000 | .250 | .600 | .243 | .142 | .383 | .034 | .058 | .416 | .066 | .050 | .309 | .535 | .316 | .041 | .016 | .457 | .084 | .312 | .034 | .066 | .150 | .661 | .118 | .290 | .168 | .314 | .000 | .000 | .595 | .744 | .649 | .369 | .428 | .110 | .051 |  |  |

N=9

Correlation coefficients  $\geq .666$  are significant at the .05 level

Correlation coefficients  $\geq .796$  are significant at the .01 level

APPENDIX H

INTERCORRELATIONS AMONG ALL VARIABLES

FOR AUTO MECHANICS

# INTERCORRELATIONS AMONG ALL VARIABLES FOR AUTO MECHANICS

| Variables              | PI-3 | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   | 32   | 33   | 34   | 35   | 36   | 37   |  |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| 2.Product Index-1973   | .028 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 3.Total OAR            | .428 | .542 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 4.Administration       | .314 | .257 | .428 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 5.Staff                | .200 | .428 | .942 | .371 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 6.Evaluation           | .085 | .942 | .600 | .200 | .542 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 7.Curriculum           | .405 | .579 | .898 | .318 | .811 | .492 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 8.Inst.Materials       | .202 | .257 | .257 | .828 | .200 | .371 | .405 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 9.Inst.Procedures      | .202 | .057 | .318 | .753 | .376 | .144 | .044 | .405 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 10.Library Materials   | .314 | .257 | .428 | 1.0  | .371 | .200 | .318 | .828 | .753 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 11.Community Relations | .314 | .142 | .885 | .600 | .942 | .257 | .753 | .428 | .463 | .600 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 12.Advisory Committee  | .600 | .771 | .657 | .085 | .428 | .714 | .637 | .200 | .202 | .085 | .257 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 13.Public Relations    | .231 | .927 | .695 | .000 | .521 | .811 | .794 | .057 | .044 | .000 | .318 | .840 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 14.Student Testing     | .428 | .600 | .828 | .542 | .657 | .657 | .666 | .257 | .521 | .542 | .600 | .714 | .724 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 15.Facility & Equip.   | .714 | .371 | .371 | .771 | .257 | .257 | .144 | .428 | .463 | .771 | .485 | .142 | .144 | .485 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 16.Graduate Placement  | .550 | .318 | .811 | .057 | .811 | .405 | .691 | .115 | .088 | .057 | .753 | .608 | .411 | .463 | .318 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 17.Stud. Placement     | .714 | .428 | .771 | .028 | .657 | .371 | .811 | .028 | .318 | .028 | .600 | .771 | .608 | .485 | .257 | .898 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 18.Stud. Organization  | .057 | .869 | .579 | .115 | .463 | .695 | .794 | .115 | .191 | .115 | .260 | .666 | .941 | .492 | .376 | .323 | .550 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 19.Supplies            | .086 | .463 | .376 | .463 | .579 | .318 | .264 | .376 | .323 | .463 | .753 | .347 | .338 | .028 | .405 | .465 | .231 | .279 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 20.Services            | .028 | .371 | .200 | .085 | .428 | .085 | .115 | .257 | .289 | .085 | .485 | .257 | .463 | .085 | .314 | .492 | .085 | .521 | .753 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 21.Equip. Expenditures | .550 | .637 | .028 | .637 | .028 | .492 | .220 | .289 | .411 | .637 | .231 | .144 | .485 | .173 | .927 | .088 | .028 | .691 | .382 | .405 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 22.Equip. Needed       | .371 | .142 | .200 | .828 | .028 | .085 | .028 | .542 | .695 | .828 | .200 | .085 | .028 | .600 | .771 | .173 | .142 | .202 | .028 | .142 | .695 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 23.Equip. Value        | .000 | .753 | .028 | .666 | .115 | .550 | .264 | .405 | .647 | .666 | .376 | .608 | .676 | .057 | .637 | .044 | .318 | .735 | .720 | .637 | .764 | .463 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 24.Facility Age        | .376 | .376 | .405 | .405 | .463 | .579 | .132 | .057 | .867 | .405 | .376 | .057 | .264 | .608 | .115 | .000 | .231 | .117 | .058 | .202 | .014 | .434 | .250 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 25.Facility Condition  | .207 | .621 | .414 | .000 | .414 | .828 | .105 | .414 | .525 | .000 | .207 | .414 | .420 | .621 | .000 | .210 | .000 | .210 | .210 | .207 | .105 | .207 | .105 | .840 |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 26.Facility Size       | .144 | .318 | .173 | .521 | .173 | .115 | .485 | .115 | .794 | .521 | .057 | .318 | .382 | .231 | .492 | .411 | .608 | .588 | .014 | .202 | .617 | .753 | .632 | .617 | .420 |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 27.Tot.Teaching Exp.   | .314 | .028 | .314 | .885 | .142 | .085 | .318 | .828 | .608 | .885 | .314 | .085 | .231 | .600 | .600 | .173 | .028 | .115 | .028 | .371 | .434 | .885 | .318 | .347 | .000 | .463 |      |      |      |      |      |      |      |      |      |      |      |  |
| 28.Yrs.-Pres.Position  | .485 | .200 | .485 | .771 | .257 | .085 | .550 | .771 | .405 | .771 | .371 | .371 | .492 | .714 | .542 | .028 | .257 | .376 | .057 | .485 | .289 | .771 | .057 | .231 | .000 | .202 | .942 |      |      |      |      |      |      |      |      |      |      |  |
| 29.Skill Exp.          | .130 | .392 | .654 | .654 | .654 | .392 | .664 | .654 | .664 | .654 | .654 | .130 | .531 | .654 | .130 | .132 | .130 | .531 | .265 | .130 | .132 | .392 | .132 | .664 | .316 | .132 | .654 | .654 |      |      |      |      |      |      |      |      |      |  |
| 30.Prof. Improvement   | .292 | .097 | .097 | .487 | .097 | .292 | .198 | .097 | .891 | .487 | .097 | .097 | .000 | .487 | .292 | .297 | .487 | .198 | .099 | .097 | .297 | .683 | .396 | .891 | .707 | .891 | .487 | .292 | .447 |      |      |      |      |      |      |      |      |  |
| 31.Degree Level        | .358 | .119 | .239 | .717 | .000 | .000 | .303 | .717 | .424 | .717 | .119 | .239 | .363 | .597 | .478 | .242 | .000 | .242 | .242 | .597 | .303 | .836 | .060 | .242 | .000 | .363 | .956 | .956 | .547 | .408 |      |      |      |      |      |      |      |  |
| 32.Employers Known     | .318 | .144 | .637 | .927 | .637 | .000 | .426 | .637 | .794 | .927 | .811 | .028 | .058 | .637 | .782 | .352 | .202 | .088 | .632 | .376 | .617 | .695 | .691 | .529 | .210 | .470 | .695 | .608 | .664 | .495 | .485 |      |      |      |      |      |      |  |
| 33.Employers Request   | .173 | .115 | .753 | .463 | .840 | .115 | .808 | .550 | .220 | .463 | .898 | .115 | .323 | .347 | .202 | .632 | .579 | .411 | .750 | .289 | .044 | .057 | .220 | .132 | .105 | .367 | .231 | .318 | .664 | .198 | .060 | .602 |      |      |      |      |      |  |
| 34.Stud. Desire        | .550 | .405 | .057 | .376 | .202 | .637 | .220 | .695 | .294 | .376 | .028 | .057 | .073 | .115 | .347 | .073 | .231 | .014 | .132 | .405 | .294 | .231 | .088 | .647 | .840 | .279 | .463 | .521 | .000 | .495 | .485 | .132 | .235 |      |      |      |      |  |
| 35.Graduate Mobility   | .142 | .828 | .257 | .200 | .028 | .771 | .231 | .314 | .028 | .200 | .200 | .771 | .753 | .600 | .142 | .028 | .200 | .579 | .782 | .542 | .318 | .200 | .695 | .318 | .621 | .028 | .142 | .314 | .130 | .292 | .358 | .202 | .347 | .318 |      |      |      |  |
| 36.Field Trips         | .176 | .617 | .088 | .353 | .353 | .441 | .044 | .264 | .358 | .353 | .529 | .617 | .582 | .264 | .264 | .223 | .088 | .492 | .940 | .794 | .358 | .088 | .806 | .089 | .213 | .134 | .088 | .264 | .134 | .000 | .369 | .492 | .537 | .000 | .882 |      |      |  |
| 37.Supervisory Visits  | .98  | .091 | .576 | .637 | .455 | .212 | .708 | .758 | .030 | .637 | .637 | .273 | .277 | .394 | .576 | .462 | .637 | .277 | .462 | .091 | .338 | .333 | .184 | .246 | .439 | .277 | .576 | .698 | .417 | .311 | .508 | .585 | .708 | .770 | .212 | .187 |      |  |
| 38.School Wealth       | .898 | .231 | .028 | .000 | .173 | .318 | .058 | .028 | .500 | .000 | .057 | .405 | .044 | .028 | .521 | .338 | .521 | .161 | .058 | .057 | .500 | .144 | .073 | .676 | .420 | .220 | .028 | .173 | .531 | .495 | .121 | .044 | .132 | .573 | .028 | .223 | .462 |  |

N=6

Correlation coefficients  $\geq .811$  are significant at the .05 level

Correlation coefficients  $\geq .917$  are significant at the .01 level

## APPENDIX I

### INTERCORRELATIONS AMONG ALL VARIABLES FOR INDUSTRIAL COOPERATIVE TRAINING

# INTERCORRELATIONS AMONG ALL VARIABLES FOR INDUSTRIAL COOPERATIVE TRAINING

| Variables               | PI-3 | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   | 32   | 33   | 34   | 35   | 36   | 37   |  |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| 2. Product Index-1973   | .616 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 3. Total OAR            | .283 | .733 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 4. Administration       | .083 | .016 | .250 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 5. Staff                | .200 | .716 | .850 | .200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 6. Evaluation           | .217 | .627 | .895 | .108 | .912 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 7. Curriculum           | .233 | .666 | .616 | .233 | .716 | .619 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 8. Inst. Materials      | .400 | .900 | .750 | .200 | .783 | .794 | .650 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 9. Inst. Procedures     | .435 | .627 | .786 | .209 | .644 | .823 | .393 | .753 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 10. Library Materials   | .529 | .756 | .613 | .218 | .613 | .704 | .672 | .840 | .784 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 11. Community Relations | .433 | .250 | .600 | .000 | .550 | .702 | .266 | .300 | .543 | .336 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 12. Advisory Committee  | .133 | .066 | .233 | .533 | .033 | .016 | .066 | .116 | .251 | .142 | .016 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 13. Public Relations    | .361 | .495 | .823 | .092 | .815 | .877 | .563 | .546 | .738 | .504 | .857 | .067 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 14. Student Testing     | .588 | .789 | .823 | .294 | .613 | .755 | .453 | .815 | .945 | .792 | .487 | .218 | .677 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 15. Facility & Equip.   | .750 | .716 | .566 | .216 | .566 | .502 | .350 | .566 | .711 | .596 | .400 | .400 | .613 | .747 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 16. Graduate Placement  | .234 | .820 | .527 | .225 | .652 | .420 | .786 | .711 | .189 | .476 | .033 | .158 | .270 | .367 | .334 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 17. Stud. Placement     | .317 | .426 | .435 | .368 | .543 | .550 | .510 | .451 | .445 | .738 | .376 | .435 | .388 | .375 | .393 | .268 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 18. Stud. Organization  | .266 | .216 | .533 | .133 | .450 | .410 | .066 | .250 | .058 | .184 | .300 | .166 | .310 | .126 | .133 | .326 | .142 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 19. Supplies            | .086 | .155 | .672 | .103 | .448 | .701 | .379 | .345 | .528 | .417 | .621 | .103 | .582 | .461 | .051 | .025 | .433 | .414 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 20. Services            | .653 | .188 | .138 | .019 | .217 | .069 | .158 | .427 | .179 | .613 | .099 | .544 | .379 | .653 | .183 | .004 | .198 | .143 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 21. Equip. Expenditures | .113 | .348 | .113 | .530 | .226 | .135 | .313 | .156 | .428 | .004 | .278 | .174 | .210 | .289 | .052 | .668 | .183 | .113 | .477 | .186 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 22. Equip. Needed       | .195 | .025 | .408 | .842 | .051 | .115 | .017 | .119 | .247 | .128 | .400 | .263 | .364 | .351 | .127 | .162 | .273 | .297 | .431 | .126 | .560 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 23. Equip. Value        | .050 | .151 | .142 | .420 | .050 | .067 | .361 | .344 | .135 | .097 | .126 | .403 | .182 | .097 | .075 | .004 | .113 | .084 | .313 | .254 | .136 | .562 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 24. Facility Age        | .260 | .075 | .100 | .025 | .361 | .088 | .117 | .025 | .050 | .059 | .243 | .411 | .118 | .072 | .352 | .194 | .122 | .016 | .339 | .000 | .289 | .326 | .004 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 25. Facility Condition  | .079 | .079 | .158 | .079 | .026 | .185 | .131 | .263 | .066 | .000 | .184 | .579 | .026 | .159 | .395 | .039 | .264 | .553 | .409 | .140 | .192 | .188 | .385 | .730 |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 26. Facility Size       | .189 | .129 | .189 | .278 | .029 | .020 | .268 | .268 | .180 | .045 | .069 | .488 | .020 | .135 | .268 | .035 | .330 | .139 | .494 | .568 | .036 | .417 | .843 | .105 | .141 |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 27. Tot. Teaching Exp.  | .016 | .252 | .193 | .159 | .210 | .113 | .252 | .193 | .257 | .190 | .184 | .655 | .118 | .063 | .243 | .510 | .324 | .672 | .095 | .089 | .412 | .171 | .033 | .377 | .611 | .005 |      |      |      |      |      |      |      |      |      |      |      |  |
| 28. Yrs.-Pres. Position | .008 | .153 | .008 | .093 | .025 | .162 | .025 | .034 | .500 | .382 | .017 | .383 | .150 | .274 | .272 | .435 | .290 | .638 | .132 | .222 | .604 | .095 | .012 | .244 | .430 | .132 | .884 |      |      |      |      |      |      |      |      |      |      |  |
| 29. Skill Exp.          | .547 | .547 | .000 | .410 | .273 | .068 | .547 | .410 | .137 | .552 | .136 | .000 | .069 | .207 | .547 | .550 | .412 | .547 | .425 | .244 | .572 | .489 | .069 | .276 | .505 | .245 | .138 | .139 |      |      |      |      |      |      |      |      |      |  |
| 30. Prof. Improvement   | .458 | .256 | .165 | .550 | .073 | .032 | .330 | .183 | .211 | .115 | .174 | .706 | .069 | .078 | .055 | .386 | .064 | .128 | .284 | .359 | .512 | .248 | .152 | .360 | .174 | .328 | .582 | .440 | .527 |      |      |      |      |      |      |      |      |  |
| 31. Degree Level        | .484 | .000 | .018 | .316 | .018 | .018 | .242 | .074 | .318 | .046 | .335 | .055 | .357 | .263 | .596 | .336 | .261 | .316 | .327 | .896 | .330 | .247 | .131 | .169 | .324 | .545 | .272 | .352 | .153 | .123 |      |      |      |      |      |      |      |  |
| 32. Employers Known     | .201 | .420 | .285 | .260 | .142 | .122 | .151 | .369 | .143 | .101 | .042 | .352 | .067 | .330 | .159 | .320 | .493 | .613 | .113 | .169 | .096 | .261 | .487 | .194 | .611 | .451 | .614 | .562 | .207 | .175 | .140 |      |      |      |      |      |      |  |
| 33. Employers Request   | .253 | .033 | .101 | .151 | .160 | .194 | .227 | .143 | .055 | .323 | .219 | .692 | .127 | .046 | .270 | .042 | .500 | .708 | .087 | .140 | .004 | .025 | .531 | .212 | .720 | .464 | .672 | .504 | .485 | .222 | .018 | .710 |      |      |      |      |      |  |
| 34. Stud. Desire        | .218 | .008 | .470 | .621 | .151 | .388 | .176 | .016 | .506 | .038 | .697 | .142 | .610 | .470 | .285 | .367 | .181 | .336 | .487 | .519 | .715 | .798 | .152 | .228 | .252 | .010 | .033 | .128 | .552 | .259 | .535 | .305 | .297 |      |      |      |      |  |
| 35. Graduate Mobility   | .261 | .060 | .165 | .087 | .243 | .201 | .156 | .182 | .209 | .157 | .452 | .635 | .452 | .070 | .461 | .218 | .559 | .313 | .126 | .377 | .081 | .102 | .482 | .408 | .743 | .343 | .526 | .422 | .214 | .196 | .360 | .645 | .586 | .210 |      |      |      |  |
| 36. Field Trips         | .059 | .256 | .034 | .418 | .008 | .176 | .094 | .085 | .154 | .137 | .555 | .581 | .172 | .189 | .444 | .214 | .000 | .359 | .433 | .132 | .093 | .048 | .116 | .650 | .648 | .030 | .521 | .366 | .421 | .400 | .172 | .077 | .571 | .254 | .151 |      |      |  |
| 37. Supervisory Visits  | .179 | .290 | .376 | .504 | .299 | .163 | .350 | .222 | .223 | .021 | .222 | .094 | .245 | .271 | .273 | .412 | .360 | .205 | .079 | .091 | .049 | .314 | .250 | .521 | .243 | .030 | .081 | .043 | .070 | .221 | .172 | .275 | .025 | .133 | .111 | .618 |      |  |
| 38. School Wealth       | .678 | .423 | .305 | .355 | .254 | .178 | .033 | .186 | .468 | .341 | .254 | .695 | .350 | .487 | .881 | .034 | .383 | .271 | .193 | .553 | .017 | .155 | .051 | .401 | .589 | .081 | .478 | .311 | .417 | .167 | .587 | .034 | .489 | .247 | .646 | .530 | .095 |  |

N=9

Correlation coefficients  $\geq .666$  are significant at the .05 level

Correlation coefficients  $\geq .796$  are significant at the .01 level

## VITA 2

Ralph Wayne Ross

Candidate for the Degree of

Doctor of Education

**Thesis:** A STUDY OF SELECTED PROCESS EVALUATION VARIABLES AND THEIR  
RELATIONSHIP TO PRODUCT CRITERIA IN SECONDARY VOCATIONAL  
EDUCATION PROGRAMS IN OKLAHOMA

**Major Field:** Vocational-Technical and Career Education

### Biographical:

**Personal Data:** Born in McCloud, Oklahoma, November 21, 1934, the  
son of Mr. and Mrs. Ollie Ross.

**Education:** Graduated from Harrah High School, Harrah, Oklahoma in  
May, 1953; received the Bachelor of Science in Education  
degree from Central State University, Edmond, Oklahoma in  
August, 1960; received the Master of Science degree in Trade  
and Industrial Education in July, 1970 and completed the  
requirements for the Doctor of Education degree at Oklahoma  
State University, Stillwater, Oklahoma, July 25, 1975.

**Professional Experience:** United States Army, 1953 through 1956;  
Industrial Arts teacher at Shawnee Junior High, 1960 through  
1967; Vocational Carpentry teacher at Shawnee High School,  
1967 through 1969, and Local Director of Vocational Educa-  
tion, Shawnee Public School, Shawnee, Oklahoma, 1969 through  
1970; research staff assistant, Oklahoma State University  
and Coordinator of Evaluation with the State Department of  
Vocational and Technical Education, Stillwater, Oklahoma,  
1970 through 1975.

**Professional Organizations:** American Vocational Education Research  
Association, Iota Lambda Sigma and Phi Delta Kappa.